

American Artisan and Hardware A Record

Sheet Metal Work-Warm Air Heating

Warm Air Heat Is The Best For-



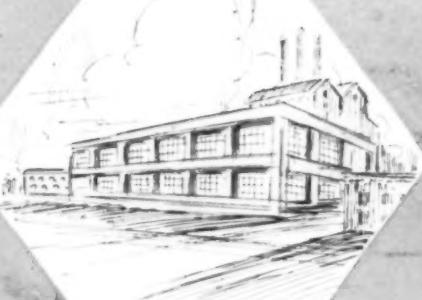
The
Home



Apartment



Large
Residence



Factory



Public
Garage



Store

34th

WARM AIR
FURNACE
ANNUAL
NUMBER



Church



Movie Theater



School



Here's the New and Greater

MONITOR



LEADING furnace dealers representing every section of the country have unanimously acclaimed the New Monitor as an outstanding achievement of the heating industry. It has been designed in accordance with ratios and best practices determined by the Research Department of the University of Illinois and the Standard Code.

Casings and castings are of extremely generous proportions and give tremendous capacities. The area of heating surfaces is unusually large and provides ample reserve for all conditions.

The New Monitor has created a sensation wherever exhibited. Made in two pipe models, regular and square-cased. Also Pipeless model. Full line of sizes.

Territories are being allotted rapidly. If interested, write or wire for full details.

CALORIC

SYSTEM OF CIRCULATING HEAT

The biggest value in the popular-priced furnace field today! Defies competition. Improved construction—one-piece radiator with smoke and clean-out collars cast on—built-in smoke consumer—many other exclusive features. World famed CALORIC quality throughout. Pipe and Pipeless Models.



The Monitor Furnace Co.

*108 Years of
Continuous
Heating Service*

Cincinnati, O.



Corrugated 2-piece Fire Pot adds strength and also provides additional heating surface. Deep cup joints are gas tight even under strain of expansion and contraction.

Large Feed Door is built in two parts which may be opened separately or together, affording easy access to all points of furnace.

Large Combination Chamber assures complete combustion—giving full value from every pound of coal, and making frequent firing unnecessary.

THATCHER METEOR FURNACE

A sound investment for your customer's! A sure profit-maker and business-builder for **you!**

By installing a Thatcher Meteor Furnace you are giving your customer a Warm Air Furnace that has proven its efficiency and economy in thousands of homes. The special one-piece cast iron radiator,—the large feed door,—the ample size Combustion Chamber and Corrugated Fire-Pot are typical of the many advanced features found in the "Meteor"—features which save your customers time, trouble and fuel.

EASY TO INSTALL

The high cast-iron front saves labor in fitting casings. Solid one-piece base plate makes it easy to erect furnace with the certainty that the foundation is level and will remain so. And, of course, all Thatcher Products are sold only through the trade.

Write for printed matter and full trade information

THE THATCHER COMPANY

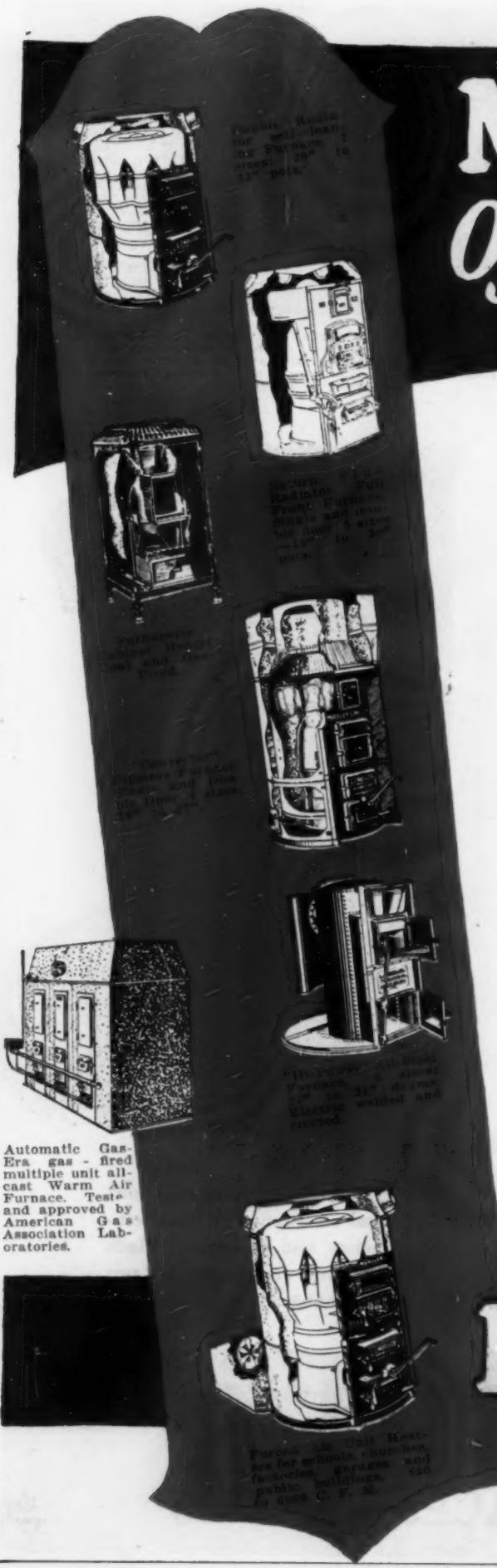
SINCE 1850

CHICAGO NEWARK, N. J. NEW YORK
341 N. Clark St. 39-41 St. Francis St. 21 W. 44th St.



Meteor burns hard coal, soft coal or wood with equal efficiency and economy. Made in sizes and types to suit any house.

THATCHER BOILERS-FURNACES-RANGES



MUELLER

Offers you more

MUELLER offers the progressive dealer a line of heating equipment second to none, backed by result-getting sales and engineering cooperation. Your job is simplified, made easier and more profitable. Mueller helps include:

Complete direct mail campaign to your prospect lists—**free**, including postage.

Attractive folders, booklets, and catalogs—supplied by us, free;

Advertisements and ad cuts for use in your local newspaper.

Striking six-color window display, 70 inches wide; Wall hangers for your office, featuring Mueller Furnaces and Convector; Canvas store banner, 20 feet long; Metal store sign, metal truck sign, waterproofed house signs, street car cards, movie slides; Home Economics Survey that gives you a true picture of your local market and helps you locate prospects;

Engineering Service that includes checking of material estimates, laying out job, preparation of blue prints, etc.;

Time Payment Plan that makes it easy for the customer to buy—easier for you to **sell!** You get your profit **in cash**.

These helps, plus the most complete line of heating equipment in the industry, are good reasons why it will pay you to be a Mueller dealer in 1928—and in the years to come!

There is a Mueller Heater of the proper **type** and **size** for every kind of a heating job—Furnaces, Boil-

MUELLER

COAL-FIRED
GAS-FIRED

The most Complete Line in the Industry!

ers, Cabinet Heaters; Warm Air Systems, Hot Water, Vapor and Steam Systems; Coal-fired, Gas-fired, Wood-Burning, Oil - Burning;—the most complete line in the industry!

The Mueller dealer need not go elsewhere for any of the equipment required for any heating installation. The Mueller line, in addition to including every type and size of heater, also comprises registers, pipe, fittings, radiators, hot water coils, automatic air moisteners, special grilles—everything needed to finish the job.

Ample warehouse stocks are carried at our Milwaukee plant as well as at branch warehouses, strategically situated throughout the country. You get what you want—and get it **quick**.

In addition, Mueller salesmen, each a heating engineer, cover the country and are at your service—always ready to cooperate.

Get lined up with Mueller now. Sell the Mueller line—the most complete line in the industry! Write for details of our dealer arrangement.

L. J. MUELLER FURNACE COMPANY

Established 1857

193 Reed Street

Milwaukee, Wis.

SHOWROOMS AND WAREHOUSES:

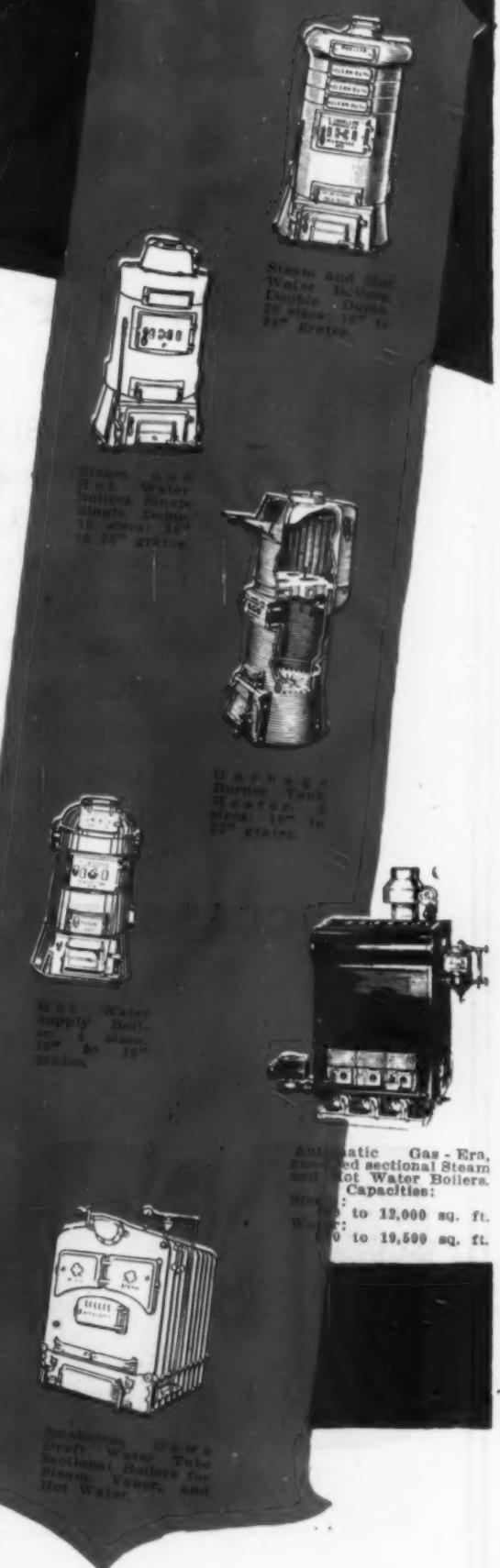
Boston
Baltimore
Chicago
Detroit
Ft. Collins, Colo.



Minneapolis
St. Paul
St. Louis
Salt Lake City
Seattle

HEATERS

OIL-BURNING
WOOD-BURNING



Bigger Sales with the complete line A heater for every requirement

THE SUCCESS Heater line enables dealers to meet practically every heating requirement. Naturally, this means more sales which means better profits. It also means heaters that give satisfaction because they are exactly the right type for each individual job. That means pleased customers who will boost for your service. It will certainly pay you to investigate the sales possibilities of this complete line of well-built, carefully designed heaters. There is still time to join the growing list of dealers selling more SUCCESS Heaters every year.

SUCCESS HEATER MFG. CO., Des Moines, Iowa

A line of heaters that will sell



LOW SERIES SERVICE HEATER CASED. For shallow basements. Six inches lower than standard size.



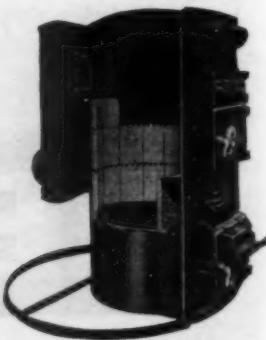
HEAVY DUTY SERVICE HEATER. Ideal for large homes or smaller schools and churches. Economical to operate.



NATIONAL SUCCESS STEEL HEATER. Our lower priced heater. Welded steel. Gives exceptional service.



STANDARD SERVICE HEATER. Built of ARMCO-Ingot Iron, welded. Gas and smoke tight. Gives years of service.



CUT-AWAY VIEW OF STANDARD HEATER. Showing heavy grate rings, firebrick, and other features.

for 1928

of SUCCESS Heaters

Co-operation for our dealers

WE are pleased to announce that in 1928, we will offer our dealers a more complete, more intensive plan of co-operation than ever before. Our dealer helps include direct mail campaigns, circulars, letters, local advertisements and other material. We are confident that we are in a position to assist dealers to realize on the sales possibilities in their communities. Ask our salesman to give you the particulars or write us for details. Our plan of co-operation will interest you and we know it will pay you to investigate.

**Write for details of our dealer franchise
and build good will for you**



PIPELESS FURNACE
that gives utmost satisfaction where a heater of this type is desired.



POWER PLUS WARM AIR GENERATOR has two radiators, heavy bar grates and other features. A powerful heater.



SUCCESS WOOD BURNER.
especially suitable for rural communities having wood supply.
Efficient and reliable.



SUCCESS ROOM HEATER.
Standard Service Heater set on legs. Gives uniform circulation.
Ideal for garages, etc.

December 31, 1927

NOW IN ITS 46th YEAR



THE Weir is the Original Steel Furnace -- the highest class Warm Air Furnace possible of construction. With high quality installations it makes the ideal home heating system.

THE Weir pioneered in soft coal burning -- it is especially constructed to burn the soot and gases -- a mica window in the door enables you to SEE the Weir perform this function.

THE warm air heating contractor who is at least more than passably interested in warm air heating knows that while furnaces have been sold and installed for more years than he has lived, Warm Air Heating as the industry and the public is now interested in it, is just getting a good start.

He knows the ifs and buts and all the old stuff, but is getting the new slant on things because it's good, sound business, and a world of opportunity waits for the live merchandisers who know that with quality behind their sales work they will be successful.

This is essentially the argument that brings the liveliest dealers to the Weir--these thoughts are essentially the facts that are making the high quality Weir grow year after year in the face of competition that does not include these thoughts as the main reason for sales. It has been good business for the Weir to guarantee its performance WHEN INSTALLED ACCORDING TO THE STANDARD CODE. It has been good business for the Weir to place a Brass Plate on each furnace certifying its B. T. U. capacity and cold and warm air circulation.

It has been good business for the Weir to preach and practice quality warm air heating, because it has meant better profits and steady growing business for Weir dealers.

Just write for your copy of The Weir Book of Facts--it will help you realize that it is easier and more profitable to sell quality warm air heating.

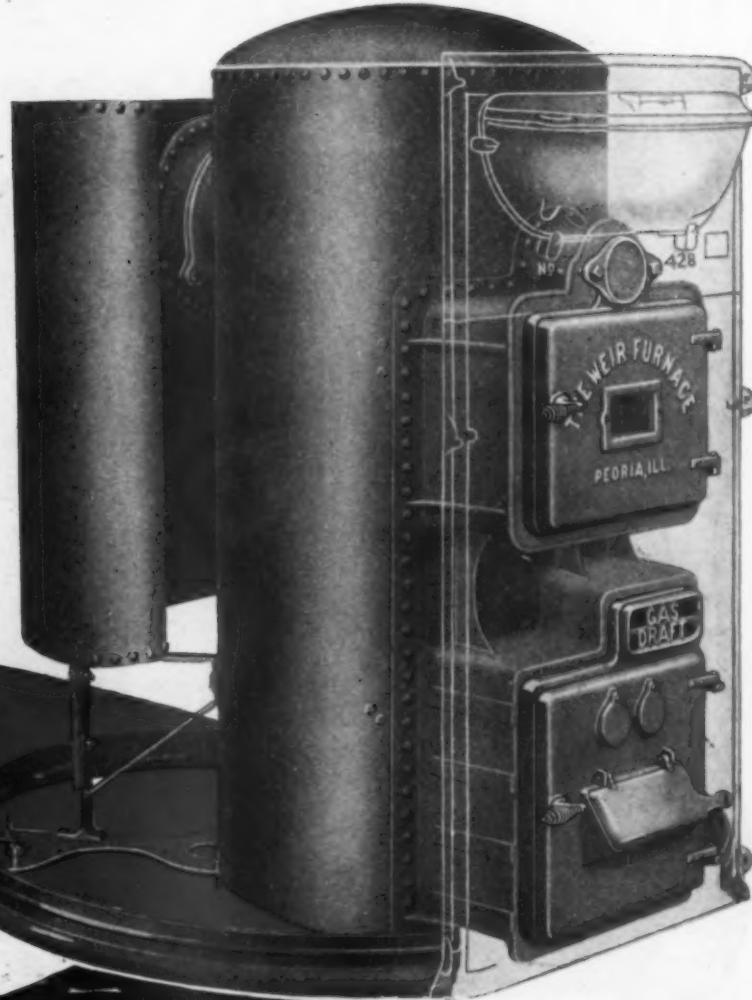


Say you saw it in AMERICAN ARTISAN—Thank you!

THE Weir has so many sound high quality features that your customers will remark about its low cost in comparison to its value.

SPECIAL STEEL -- LARGEST radiator of any steel furnace on the market--Five Year Guarantee on ENTIRE FURNACE AND ALL PARTS --these are just a few Weir Features.

Weir Steel Furnace



ESPECIALLY designed for Oil Burning--its absolute tightness, immense heating surface and damperless construction make it best for Oil Burning.

— the dealers best bet for high grade warm air heating and a growing profitable business —

The Weir enables you to close every sale--enables you to create sales on quality and price.

The Weir is the lowest priced high quality home heating unit the public can buy. And the best--because it is for Warm Air Heating.

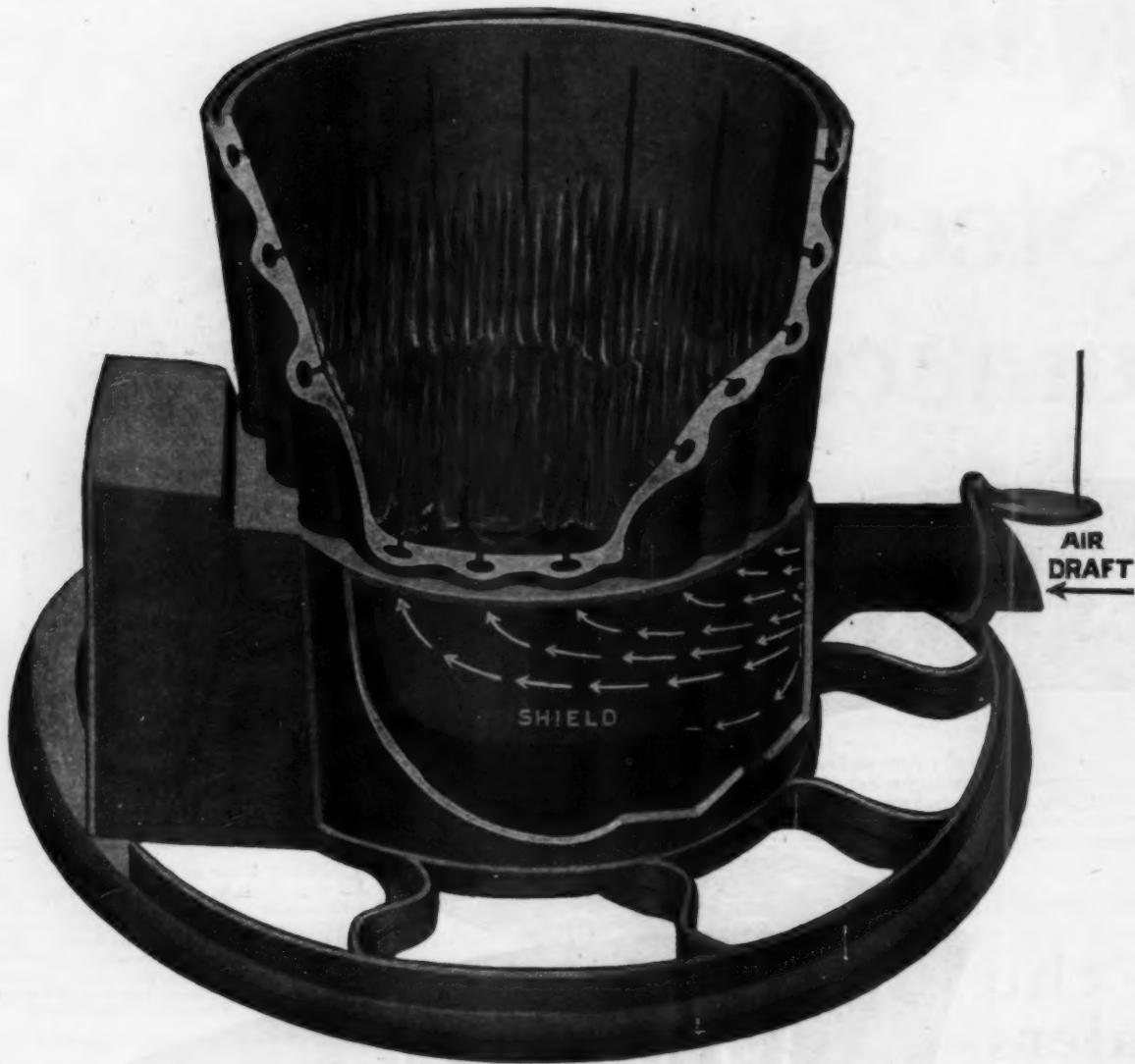
EVERY Weir is *Rated according to the Standard Code -- a Brass Plate permanently attached to each Weir tells its B. T. U. Capacity, Cold and Warm Air Circulation and GUARANTEES its performance when installed according to the Standard Code.

*Official Ratings by authority of National Warm Air Heating and Ventilating Association.

The MEYER FURNACE CO.
Peoria, Illinois

When writing mention AMERICAN ARTISAN—Thank you!

"Standard of fine furnace value for 34 years"



Note how the air from the air draft strikes the metal shield and is diverted around the fire and up through the tapered air tubes from where it mixes with and ignites the gases above the burning coals.

XXth CENTURY HOT BLAST FURNACES

No Where Will You Find a More Complete and Profitable Line

XXth Century Hot Blast Cast Furnaces for *Quality Buyers*
 XXth Century Hot Blast Steel Furnaces for *Quality Buyers*
 Portage Furnaces for *Price Buyers, Real Estate men, Builders*

and profitable supplementary lines

- XXth Century Pipeless Furnaces
- XXth Century Single Register Furnaces
- XXth Century Room Heaters
- XXth Century Hard Coal and Coke Furnaces
- XXth Century Gas Furnaces
- XXth Century Auxiliary Gas Burners

Exclusive XXth Century Dealer Special

XXth Century Patented Overhead System of Heating

Big Money on Big Jobs

XXth Century Horizontal Flow Heating and Ventilating Systems for schools, churches and public buildings.

The XXth Century line is complete for every purpose. By concentrating your entire purchases on XXth Century — you are entitled to longer profits and greater credit. Send the coupon today for this profitable dealer proposition.

**The XXth Century H. & V. Co.
Akron, Ohio**

THE XXth CENTURY H. & V. CO.,
Akron, Ohio

Without obligation please give me complete facts on
your dealer proposition.

AMERICAN ARTISAN

American *Self Cleaning* Furnace



THE American Self Cleaning Furnace is the finest example of modern furnace design. Experienced dealers express their admiration whenever they examine its unusual features and see how massively it is built.

A comparison of the size of grate, firepot, feed section, dome, heating surface and actual weight of this furnace, with any other on the market will prove the assertion that these furnaces are fully proportioned.

Can be furnished either as a pipe, standard pipeless, or room heater.

AMERICAN UNUSUAL FEATURES

1. Self Cleaning.
2. Covered Joints.
3. Feed Section Thru Front.
4. Ball-bearing Grates.
5. Deep Roomy Ash Pit.
6. Large Ash Pit Door.
7. Large Double Fuel Door.
8. Two Piece Slotted Firepot.
9. Full Proportioned.
10. Entire Grate Removable Thru Ash Pit Door.

Dealer Cooperation

THE American Foundry & Furnace Co. have always maintained an enviable reputation in the cooperation with dealers. Every American dealer is fully supplied with advertising matter, house signs, movie slides, and has the opportunity to make full use of a special direct mail plan to home owners and contractors.

The American Foundry & Furnace Co. also offers every dealer an excellent time payment plan that is found to be of great help in making volume sales.

AMERICAN FOUNDRY & FURNACE CO.
BLOOMINGTON, ILLINOIS
DEPT. 300

Lincoln Furnace

SPECIAL FEATURES OF THE LINCOLN

1. A Heavy Oversize Furnace.
2. Easy to operate.
3. Ball-bearing grates.
4. Feed section through front.
5. Large ash and fuel doors.
6. Covered Joints throughout.
7. Two-piece slotted firepot.
8. Upright shaker handle.
9. Deep roomy ash pit.
10. Radiator cleanout and smoke pipe cast in one piece with radiator—all collars cast on.



IN the building of this top radiator type of furnace, our engineers have arranged every detail to give satisfaction under all conditions.

No expense has been spared in its construction in order to give the user absolute satisfaction, economy of operation, and complete absence of dust and coal gas.

A comparison of this furnace with others of similar type will reveal its superiority in design, weight and construction. This furnace can be furnished as a pipe, standard pipeless, or room heater.

The American Heat Hustler

Many homes have one room that won't seem to heat no matter how hot the fire is in the furnace.

To correct the difficulty of the "Cold Room," the American Foundry & Furnace Co., have designed the Heat Hustler, an entirely new type of electric blower to be mounted directly in the heat pipe.

It has positive action, drawing the warm air from the furnace and forcing it through the warm air register.

The "American Heat Hustler" is controlled by means of a switch located in the room to be heated, or it can be connected with a thermostat.

It is made in several sizes to service all types of rooms.

Write for information and prices.

AMERICAN FOUNDRY & FURNACE CO.
BLOOMINGTON, ILLINOIS
DEPT. 300

Fan Heating~

is simple and flexible with the ROBINSON
*Directed to the pipe desired and
 the correct amount for each pipe~*

THE Robinson is the simplest and most practical heat distributor made. Notice that its exclusive design enables immediate distribution of heat in the desired amount and exactly to rooms needing it.

The Robinson is the only heat distributor made that forces the heat to the exact point.

You favor any pipe with extra heat by simply cutting a larger opening in that side of Heat Distributor Drum.

Being used with success by thousands. Write today for complete engineering details, prices, etc.



Say you saw it in AMERICAN ARTISAN—Thank you!

A furnace designed for Proper Heating



Plenty of room for easy flow of air over the Radiating Surfaces

RADIATOR SUPPORTED INDEPENDENTLY
NO WEIGHT ON FURNACE DRUM

THE Robinson Steel Furnace is All-Steel—Electrically Welded—made of the highest grade material to be had for warm air furnace construction. Toncan Copper Mo-Lyb-Den-Um Iron is widely known and used for every purpose where a superior metal is imperative. Its composition contains elements which fortify it against Rust and Corrosion.

THE design of the Robinson provides for quick abundant heating and the easy flow of cold air over the heating surface is an important Robinson feature.

It conforms to the new Rating Formula— $22\frac{1}{2}$ inches of Radiating surface to every square inch of Grate Area.

It is in every way a high quality heating system

—a furnace of the NEW order of things—scientific, quality heating.

With the Robinson Heat Distributor and the Robinson Steel Furnace you can sell a complete heating and ventilating system.

Write today for full detailed information—ask for agency details and our new catalog.



The A. H. ROBINSON COMPANY
MASSILLON, OHIO

Meet the *Agricola* Organization



OTTO AGRICOLA
President



C. ACKERSON
Vice President and
Sales Manager



H. J. WAFF
Sales Promotion



W. L. STALLINGS
General Superintendent



E. L. R. SMITH
Representative



A. J. SERTL
Representative



L. C. MORIN
Representative



GEO. W. ROBINSON
Representative



E. I. KING
Representative



FRANK LYONS
Representative



WM. H. LAND
Representative



H. J. WAFF, JR.
Representative



WM. S. LILLIOTT
Representative

Mention AMERICAN ARTISAN in your reply—Thank you!

which is furnishing the nation with...



THERE is no secret as to why *Agricola* is such a big success and why it is experiencing such rapid growth. *Agricola* started at a point many other furnace manufacturers have not yet reached. A big modern factory fitted with the latest machine molding equipment and laid out for large volume production by experienced foundry engineers. Located in an advantageous market for raw materials insuring highest quality and low operating costs together with ideal working conditions. *Agricola* is especially suited for Jobbers and the larger dealers desiring higher quality for their volume business. PRICES CONSISTENT WITH LOW MANUFACTURING COSTS. WRITE FOR FULL DETAILS TODAY

Agricola Furnace Company
GADSDEN, ALABAMA

Ride with the ever increasing wave of popularity for better warm air heating with better furnaces — Wise Furnaces have always been better furnaces — the reason why wise dealers have chosen them — Be a Wise dealer



AND never before have Wise furnaces been better than they are now—the big improvements made on Wise furnaces this year have enabled Wise dealers to give that extra added value that means easier sales and better satisfied customers.

And these improvements have been made without adding to the price—giving Wise dealers furnaces with advanced refinements—the result of long experience and our constant expert study of warm air heating requirements.

THE details of construction of all Wise Furnaces will interest you—Write for our latest catalog TODAY—Ask for Wise Agency details.



Twenty-Five



The Wise

When writing mention AMERICAN ARTISAN—Thank you!



WISE sales have grown on the basis of quality and whenever a Wise pattern has been changed it has been for a *real improvement*—there are no "frills" on Wise Furnaces.

Wise Furnaces are manufactured with the idea that you are more interested in getting *real quality—honest value* at the right price than in anything else.

Wise Furnaces are sold to you with the idea that you know *your business* of selling and installing—or your business won't grow or live no matter how much help we give you.

If you are the progressive type of warm air heating man and want *utmost quality at the right price*—examine Wise quality now.

The line is complete, Cast Furnaces and also the New Wise Steel Furnace.

Naturally, Wise dealers want a Wise Steel Furnace—a steel furnace with the familiar Wise high quality.

Not until we could design and build a *better* steel furnace did the Wise Steel Furnace appear.

It had to live up to Wise high standard of quality and it *does*.



THE Wise 40 Series Open Dome Furnace with a heavily constructed New Cellular One-Piece Firepot. A series of air cells which extend from bottom to top enable air to be pre-heated before entering above and into the fuel, supplying a continuous and evenly distributed air blast which provides complete combustion.

Elbow Shaped Flue Collar on Inside of Radiator Turned Up
The heat within the radiator must follow the castings to the top before entering flue.

Years of Leadership

Furnace Co., Akron, Ohio



Mention AMERICAN ARTISAN in your reply—Thank you!

New! Better!

A Distinct Advance in

The 1000 Series

SUNBEAM warm air furnaces

With the development of this new product, the largest makers of heating equipment in the world offer an advanced furnace line with every superiority that could be desired.

Old qualities, distinctively Sunbeam, remain. Ample heating capacity; ease of installation; Sunbeametal; smooth, clean, machine-molded castings of uniform thickness and strength—these Sunbeam characteristics are, of course, incorporated in the new product.

And in addition, every refinement suggested by modern heating requirements, by 44 years of manufacturing experience, by the research activities of the heating engineers in the Sunbeam Institute of Thermal Research, has been built into the newest Sunbeam Furnace.

If unusually large heating capacity; durability and long life; the elimination of unnecessary joints in the warm air chamber; ease of installation; and ability to control fire perfectly, are the standards by which heating plant design and construction are judged, then the new Sunbeam Furnaces, 1000 Series, deserve the ranking position among the furnaces on the market, today.

With this new line, plus the selling helps and engineering service behind it, Sunbeam Dealers will have a big advantage whenever they go out after heating jobs. It will pay you to inquire about our 1928 Agency proposition. Use the coupon on the opposite page.

CONSTRUCTION FEATURES

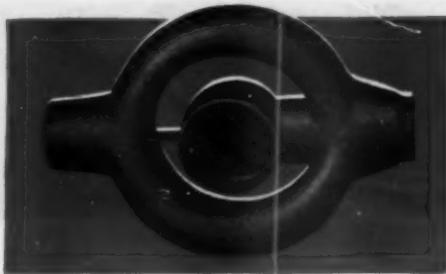
- 1 Massive Radiator, Cleanout and Smoke Collar cast in one piece.
- 2 Feed Section extends outside of front of furnace.
- 3 Ash Pit extends outside of front of furnace.
- 4 22 feet of joint within warm air chamber have been eliminated in 20" furnace. Correspondingly greater joint elimination in larger sizes.
- 5 Two types of grates available: boiler, or rocking, grate; flat, or dumping, grate.
- 6 Easy-to-operate, upright shaking lever.
- 7 All joints are deep, clean-cut cup joints.
- 8 Doors and door openings are machine-ground in special jig to insure air tight fit and absolute control of fire.
- 9 Heating unit is centered perfectly.
- 10 One piece base with high casing flange reduces installation time and costs.
- 11 All castings are machine-molded. Are extra-heavy; uniform in thickness and strength.
- 12 All castings are made of Sunbeametal.



FEED SECTION

LEAK-PROOF CONSTRUCTION

Gas or smoke from the one-piece Sunbeam Radiator cannot enter the warm-air chamber, as Smoke Collar and Cleanout Joints have been eliminated. Notice in the illustration at the left how front panel fits over and around Feed Section. The lower front panel fits over and around Ash Pit in the same manner.



ONE PIECE RADIATOR

THE FOX FURNACE COMPANY • ELYRIA, OHIO

Furnace Construction



• SUNBEAM HEATING UNIT •
Perfectly Centered

The new
SUNBEAM
WARM-AIR FURNACES
1000 Series



The Fox Furnace Co.
Elyria, Ohio.

Please send us a copy of the
new Sunbeam Catalog and
Heating Manual, as soon as
it is ready for distribution.

Name _____

Address _____

City and State _____

A-1

When writing mention AMERICAN ARTISAN—Thank you!

Heating dealers are invited
to ask for a copy of the val-
uable new Sunbeam Catalog
and Heating Manual, which
is now in the hands of the
printer. Illustrates and de-
scribes the complete Sunbeam
line, and, in addition, pro-
vides complete heating and
installation information. Use
the coupon below.

Further

WE had faith in steel furnaces 40 years ago. And these 40 years have proved we were right.

This down draft radiator costs more to make. But we use it because it is most efficient.

Oil and coke present no problems to proper construction—such as this.

O. K.!
in every detail

1888—40 YEARS' CONTINUOUS SERVICE—1928

Mention AMERICAN ARTISAN in your reply—Thank you!

Refinements

to Make a Better
"Front Rank"
 for our Fortieth
 Anniversary

SINCE 1888 the Front Rank Furnace has vindicated its superiority in principle.

Since 1888 the only way to improve it has been in minor details—refinements.

Now we announce still further refinements in the Front Rank for 1928—our 40th Anniversary.

These improvements make the Front Rank easier to sell, easier to install and a better furnace in every way.

Write for our dealer franchise. It's a money maker, and your territory may be open!

Langenberg Manufacturing Co.
 4545 North Euclid Avenue St. Louis

Note these Improvements

1. All holes in steel for radiators and drums are punched on templates, assuring greater accuracy.
2. Right and left hand radiators are interchangeable.
3. Stand pipe braces are done away with. The stand pipe and radiators are now bolted tight to dust box and need no braces.
4. Bolts on radiators and drum collars have been increased in number, giving a maximum spacing between bolts of two inches. This additional precaution against possible gas leakage makes the new FRONT RANK even better adapted to oil burning. Of course, this same protection applies in burning coal, gas, etc.
5. Additional bolts are also put in feed pouches, on approximately 2-inch centers, for the same reason as on radiator collars, namely, the increased use of oil as a fuel.
6. New improved feed pouch flanges are heavier and ribbed to prevent bending. They are interchangeable on all sizes of furnaces. Can also be used in old style furnaces with double feed doors, except the "A" and "3" Cast Front series. This will mean that most furnaces installed within the last ten years, can be repaired and gain much of the ADVANTAGES of the new style furnaces.
7. New design brick is used, with exposed face flat, and curvature on outside to match curvature on drum. Brick manufacturers assure us perfect fit can be secured with the one flat side. The lower brick comes up to the steel parts. Under the door a special, somewhat thicker, brick is employed to stand rough poker usage. The top brick will be same height as the lower and will extend almost to the line of radiator collars. The increased use of coke is an additional reason for increasing the height of fire brick.
8. Door faces and doors of feed and ash pit pouches are ground to fit on horizontal disc grinder. Additional care is taken to cut down leakage, particularly on ash pit doors.
9. Brass name plates will be used on feed door frames to show Certified Standard Code Ratings of furnaces.

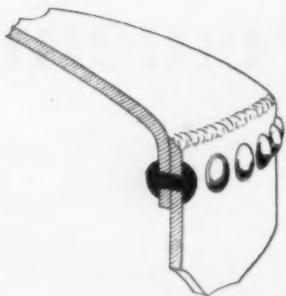
FRONT RANK
TRADE NAME REGISTERED
HEATING SYSTEMS

Over 250,000 in use. Guaranteed to maintain an average temperature of 70° in zero weather when installed according to the Standard Code. We indorse the Standard Code.

Say you saw it in AMERICAN ARTISAN—Thank you!



WANTED: -A Man Who Insists on Doing



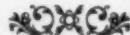
Riveted and Welded

The drum of the Armstrong Boiler Plate Furnace is both riveted and welded, to best withstand the stress of contraction and expansion and remain absolutely gas and smoke-tight forever.



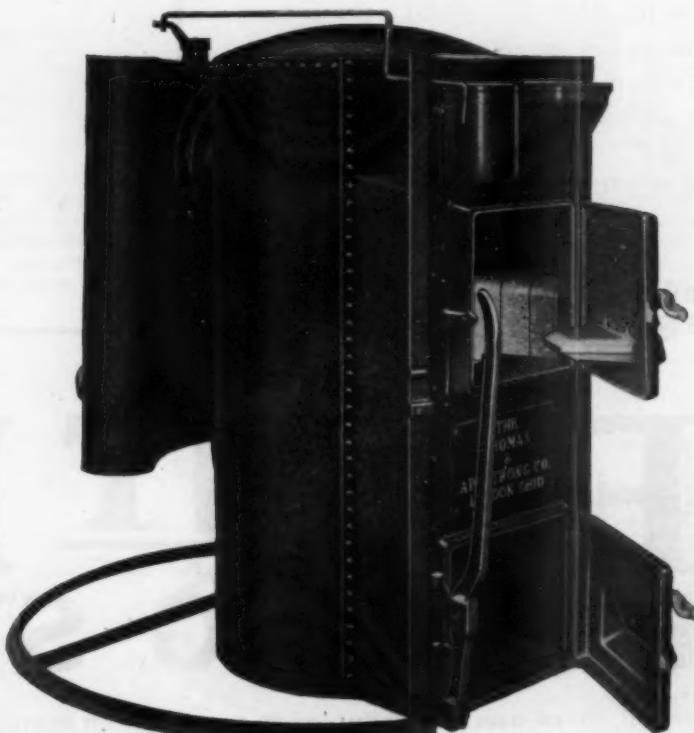
Guaranteed Ten Years

Every Armstrong furnace is guaranteed to be free from defects in material and workmanship and if any part of furnace proper or radiator, except grates or lining brick, prove defective within ten years from date of purchase, we will furnish same free of charge f. o. b. factory—provided the furnace has been installed according to the current "Standard Code,"—been properly operated and the guarantee coupon has been fully filled out by dealer.



WE build quality furnaces and guarantee them for ten years, when installed according to Standard Code. Because of our guarantee, our responsibility to the purchaser of an Armstrong furnace must go beyond our factory; we must be sure that every furnace is correctly installed. Accordingly, we choose our dealers carefully.

And having selected a dealer, we consider him our partner. We supply him with a furnace that has no superior—a steel furnace, scientifically correct in all its proportions and honestly built to give the utmost in heating efficiency and economy—an easy selling furnace, reasonably priced. The dealer plays his part in the partnership by adhering strictly to high stand-



When writing mention AMERICAN ARTISAN—Thank you!

a Partner

Every Warm Air Job Right



ards of workmanship. By installing according to Standard Code he helps us give the purchaser real heating efficiency—guaranteed. He is actually a partner in our business of giving the world efficient warm air heating.

The type of dealer who becomes one of our partners is prosperous—as is always the case with the business man who does good work and sells a quality product. The Armstrong Furnace is the logical choice of such dealers.

* * * * *

We want a partner of this kind in your city. We offer a guaranteed steel furnace at a reasonable price and liberal discount, plus the kind of co-operation you have a right to expect. Write today for details of our dealer proposition, stating the approximate number of furnaces you sell yearly.

THE THOMAS & ARMSTRONG CO.
DEPT. A. A. LONDON, OHIO

Distributors

A. Y. McDonald Mfg. Co.

Omaha, Nebraska

Dubuque, Iowa

Kansas City, Missouri

Robinson Furnace Co.

Chicago, Illinois

Moncrief Furnace & Mfg. Co.

Dallas, Texas

N. H. Rand

Holicong, Pennsylvania

Cincinnati Sheet Metal & Roofing Co.

Cincinnati, Ohio

Stockhoff Supply Co.

St. Louis, Missouri

Heating Supply Co.

Pittsburgh, Pennsylvania

Janney-Semple-Hill & Co.

Minneapolis, Minnesota

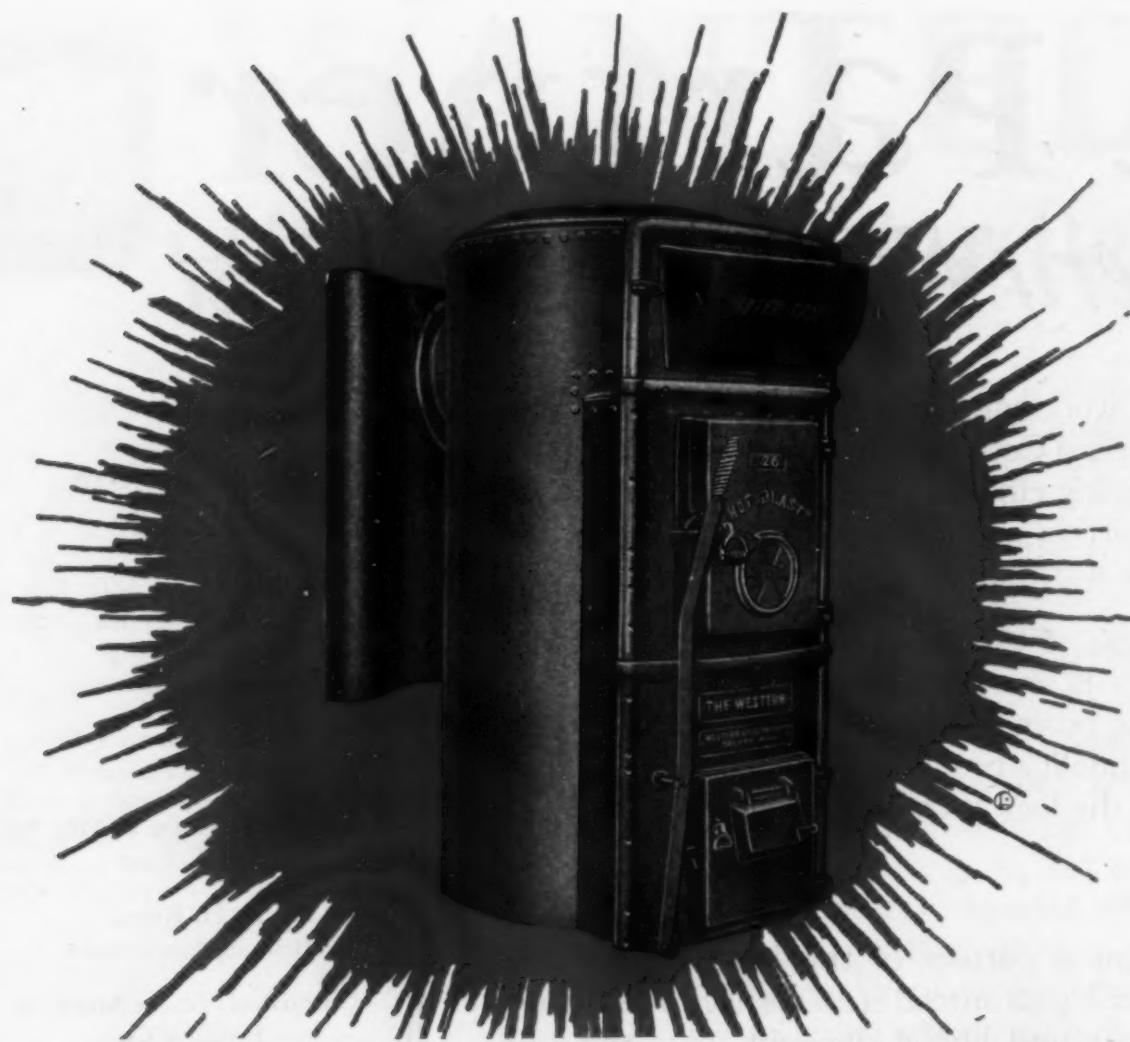
Rhodes Mfg. Co.

Grand Rapids, Michigan



*The
Boiler Plate*

ARMSTRONG FURNACE



"Western"

BOILER

PLATE

Why the Western is a popular seller

One-piece body construction--no rivets on front extension.

Large radiator with one-piece side-wall construction.

Braced support counteracts expansion and contraction.

Rust proof radiator bottom of galvanized steel.

The Western is a popular seller because every buyer is a booster. Moderate price, combined with rugged strength and durability, guarantee consumer satisfaction and more sales.

Write for complete information

Collar connections have telescope joint, asbestos packed.

Heavy, smooth-shaking grates.

Every furnace completely assembled to insure perfect fit--then taken down for packing.

Western Steel Products Co.

130 Commonwealth Ave.

Duluth, Minnesota

Distributed by

Atlanta, Ga.--Moncrief Furnace Company
Pittsburgh, Pa.--Wagener-Prole Furnace Co.

Chicago--Western Steel Products Co., 3025 West Van Buren St.

San Francisco, Calif.--Pacific Sheet Metal & Furnace Co.
Ravenna, Ohio--Ravenna Furnace Co.

MAHONING BOILER PLATE FURNACES

"RIVETED"
OR WELDED

Made by Experts Where Steel is King

STUDY the cross section view of the Mahoning Steel Furnace shown below and notice its different and better construction.

Then realize that it is made in the heart of the steel industry by men who are expert at steel fabricating by reason of long and varied experience in manufacturing with steel.

The steel used in making Mahoning Boiler

Plate Furnaces is of exceptionally high-test anti-rust quality to withstand long, hard firing.

Liberal Ten - Year Guarantee

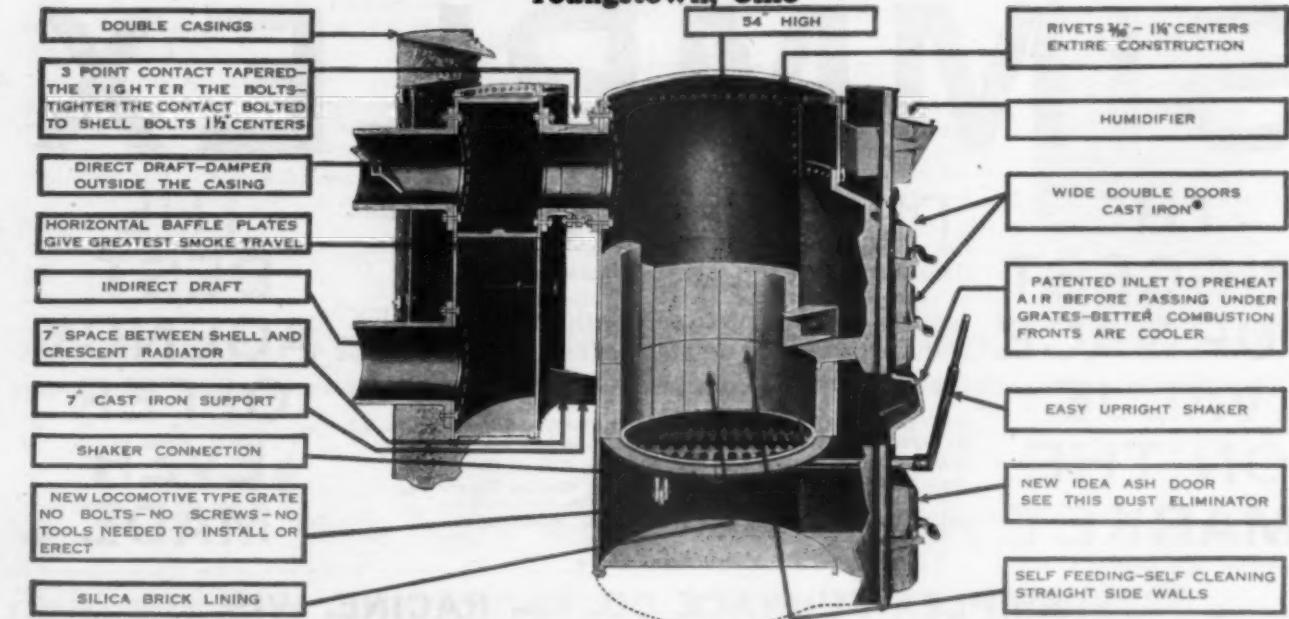
There is real backed up value in Mahoning Boiler Plate Furnaces and your customers can easily see its superiority.

Here is a real steel furnace, the kind of quality you have been wanting at a fair price.

Write today for prices, special circulars and complete agency details

The Banner Mahoning Furnace Co.

Youngstown, Ohio



When writing mention AMERICAN ARTISAN—Thank you!



SIMMPLEX

**THE
BIGGEST
FURNACE
VALUE
ON THE
MARKET**

THE *perfected* and *patented shaking device* alone saves hours of time for your salesmen in making the sale.

Dealers can keep up to date with the SIMMPLEX and talk greater grate area per size and more heating surface.

EASTERN DISTRIBUTOR--W. F. Angermyer Co., Pittsburgh, Pa.
PACIFIC COAST--Colecock Furnace Co., Seattle, Wash.
WESTERN DISTRIBUTOR--C. J. McClure, Denver, Colo.
MID-WESTERN DISTRIBUTORS--Central Heating Supply Co., Chicago, Ill.; Mohr-Jones Hardware Co., Racine, Wis.
SOUTHERN DISTRIBUTOR--H. E. Farmer, Nashville, Tenn.

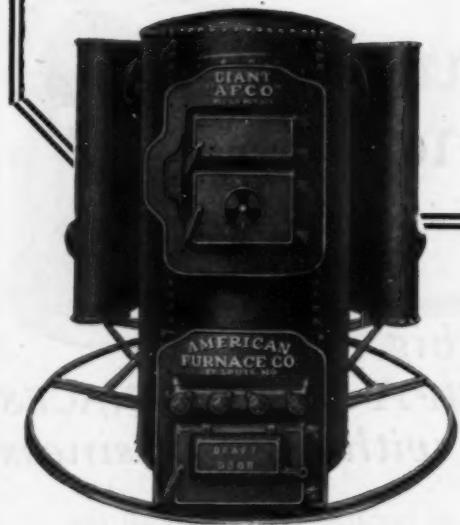
**THE
BEST
AGENCY
OFFER
EVER
MADE**

Manufactured by

SIMMPLEX FURNACE CO. — RACINE, WIS.

Mention AMERICAN ARTISAN in your reply—Thank you!

The Complete, Dependable Line of "AFCO" Boiler Plate and Cast Furnaces Offers the Installer Un- usual Advantages



The New GIANT "AFCO"

A new Boiler Plate Furnace with a Giant heating capacity.

The body and twin crescent radiators are made of heavy gauge boiler plate steel and riveted gas tight.

One-piece feed and ash pouches, locomotive type grates, adjustable brackets and improved smoke consumer are just a few of the important details of construction.

"AFCO" Boiler Plate Furnaces are made in various models and each in a complete range of sizes.

There is an "AFCO" to meet every condition. Send for catalogue.

THESE three things make the "AFCO" furnace installer successful:

1. Buying at the right price.
2. Selling at the right price.
3. Furnaces that stay sold.

Large scale production of both boiler plate and cast furnaces permits the "AFCO" line to be sold at the lowest possible prices, quality considered. The "AFCO" dealer can buy all his furnaces from one manufacturer. By buying in carload quantities he saves on freight charges and receives the benefit of quantity discounts. He buys right.

The low prices at which the "AFCO" dealer buys his furnaces assures a reasonable profit when he sells them. He makes money on every sale. That's right selling.

"AFCO" furnaces have always been above standard in quality and with advanced features of construction. They have earned an enviable reputation for dependability. Every furnace is carefully inspected before it leaves our plant and when properly installed it stays sold. It makes a friend and booster of the buyer. That builds business.

Decide now to make 1928 your banner year. "AFCO" will help you do it. The "AFCO" franchise is available to only one dealer in each community so we urge you to write us at once. Use the coupon below

The Improved Thermo

Always a good heater the Thermo has been still further improved.

You can't give your customer more for his money so why give him less.

The better construction of the Thermo makes it easy to sell and keeps it sold. Write for free catalogue.



American Furnace Co., St. Louis, Mo.

"AFCO" Boiler Plate and Cast Furnaces

Cut on Dotted Line
and Write in Margin
if Necessary.

Name..... Address.....

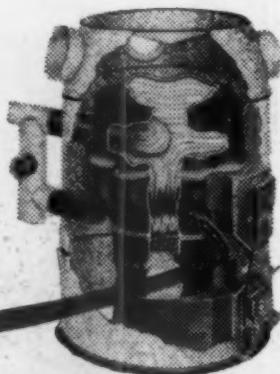
Please send your complete "AFCO" Dealer Plan (without obligation)

Say you saw it in AMERICAN ARTISAN—Thank you!



SMOKELESS

Under actual tests
with a fire
at
Maximum
Efficiency



*Just one of the big
reasons why ATH-A-NOR FURNACES
will fit in better with your business*

THEY save your customers many dollars a season in fuel because they burn all the volatile matter. No condensation — no smoke and no soot. The famous Ath-a-Nor Three-Way Air Blast supplies the proper mixture of air above the charge of coal. This air combines with the volatile matter and causes complete combustion. The Ath-a-Nor naturally burns soft coal efficiently and gets maximum heat from the fuel. This is an exclusive Ath-a-Nor feature and is *not* an appliance but a main part of the furnace construction.

*Designed especially for Powerful,
Efficient and Economical heating*

THE entire Ath-a-Nor line is high quality throughout—Open dome and top radiator styles are available. Start 1928 by knowing why the famous Ath-a-Nor furnaces will produce better business for you. Know why it is easier to satisfy customers with Ath-a-Nor furnaces. Learn now why the Ath-a-Nor agency will net you greater profits. We maintain an engineering department that is unusually excellent and very prompt in service to our dealers.

Write for 1928 prices today.



The MAY - FIEBEGER FURNACE CO.
Newark, Ohio

"Put Your Rule On The RYBOLT"

1928
Will Be
ANOTHER RYBOLT
YEAR



• **The RYBOLT Heater Company** •
ASHLAND - - OHIO

ONE PIECE BASE PLATE	ANTI-CLINKER BAR GRATES	TWO PIECE STRAIGHT SIDE RIBBED FIREPOT	RIBBED COMBUSTION DOME	TWO PIECE ALL CAST RADIATOR	DOUBLE FEED DOOR UPRIGHT SHAKER
COMPLETE STOCK OF GILT EDGE FURNACES	REGISTERS PIPE FITTINGS DAMPERS EVERYTHING FOR THE COMPLETE JOB			QUICK ACCURATE SHIPPING SERVICE	
THE GILT EDGE 500 SERIES ALL-CAST WARM AIR FURNACE	WE GUARANTEE and WARRANT the GILT EDGE FURNACE against defects in material and workmanship and will furnish FREE OF CHARGE at any time parts found defective R.J.SCHWAB & SONS CO. Milwaukee, Wis.			NOTE THE EVEN THICKNESS OF METAL IN EACH GILT EDGE CASTING	
AN EFFICIENT GILT EDGE ENGINEERING DEPARTMENT AT YOUR SERVICE	GILT EDGE ADVERTISING ASSISTANCE PEP'S UP YOUR LOCAL SALES CAMPAIGN			DIRECT MAIL TO PROSPECTS CO-OPERATIVE SALES EFFORT DIRECT MAILINGS TO ARCHITECTS AND CONTRACTORS	
PEN AND INK - A POSTCARD -	A TWO CENT STAMP	AND IN THE MAIL	BRINGS YOU THIS-	An Attractive GILT EDGE Thermometer	

GILT EDGE

Guaranteed

WARM AIR FURNACES

MANUFACTURED BY

R. J. SCHWAB & SONS CO.

281 CLINTON ST. MILWAUKEE, WIS.

Say you saw it in AMERICAN ARTISAN - Thank you!

What Furnace in 1928?



Is best answered by the thousands of dealers who have steadily and surely increased their volume of furnace sales and their profits year after year with the Torrid Zone line.

As a Torrid Zone dealer you would represent the World's largest supply of steel furnaces and have at your command nearly a hundred styles and sizes to meet any heating problem.

The growth of the Lennox organization is the result of public demand for a furnace that is riveted and calked absolutely gas tight, that gets the most heat out of the fuel used, and that has an average life of more than twenty-one years. As the result of this unusually long life, every Torrid Zone Furnace that leaves our factories, carries a Ten Year Guaranty Bond.

The Torrid Zone reputation as established during the past thirty years by the pioneers in the manufacture of all-steel, gas tight furnaces, lessens sales resistance and makes it easier for you to sell more furnaces and make better profits.

Ask us for more detailed information about the Torrid Zone line of furnaces for every type of fuel.

Lennox Furnace Co.
Incorporated
Marshalltown, Iowa Syracuse, N. Y.

COMING!

a New Addition to the Keith Line

—worth waiting for—

For many years the Keith Furnace has pioneered the field of modern warm air heating. The Series "A" models, now in use, have earned for themselves an enviable reputation for economy, efficiency and dependability.

And now, we are pleased to announce a new and still further improved line of Keiths, which will be an addition to our present "A" Series line. A number of new features of great significance to the warm air heating industry will be embodied in this new line, placing the Keith still further ahead of all competition. Complete details will be publicly announced at a later date.

Write today for complete dealer information, direct from warm air heating headquarters.



"The Old Reliable Keith"

NOTE:

Send for your FREE copy
of our new catalog just
off the press.

KEITH

Furnace Company
DES MOINES, IOWA

"Always Save Money in the End"

Here It Is! The NEW DOWAGIAC STEEL FURNACE

MADE IN DOWAGIAC — *The Furnace City of America*

HOW well are YOU equipped to meet the Furnace Buyer's demands for 1928?

He wants:

Heat

Cleanliness

Ease of Operation

Economy of Fuel Consumption

Years of Satisfactory Service.

The Dowagiac Steel Furnace has been planned to meet these demands to their fullest extent. It is designed right, made right, and sold right. Back of it will be a ten year guarantee and the most comprehensive sales and advertising co-operation ever known.

It will benefit progressive furnace dealers to investigate our product and proposition for a prosperous New Year.



Seamless Steel Satisfies

DOWAGIAC STEEL FURNACE CO.

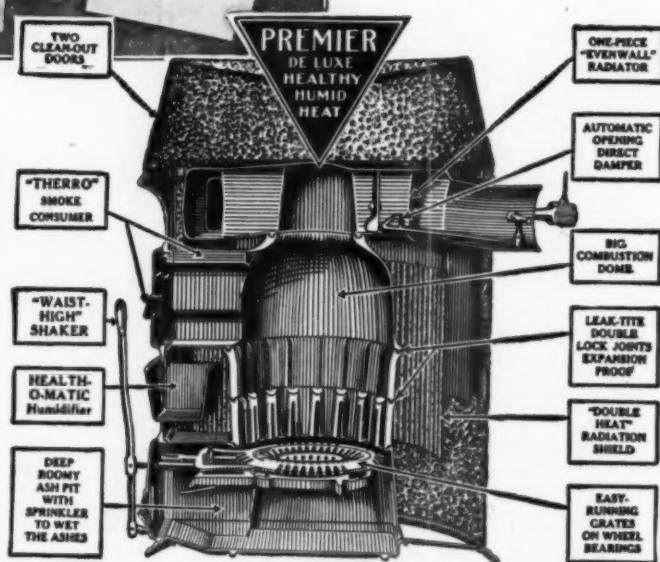
DOWAGIAC, MICHIGAN

Say you saw it in AMERICAN ARTISAN—Thank you!

Backed by an army of selling assistance

"OVER the top" you go against competition armed to the teeth with latest sales weapons—the way cleared for you by a withering barrage of high powered selling explosives—when you join the Premier Legion of Dealers. The heavy modern Premier De Luxes follow like unconquerable tanks, to capture sales, make the territory yours and hold it for you!

If you are weary of fighting alone without proper support—if you would welcome the backing of a real army of selling assistance, an army of performance rather than promise, write for particulars about enlisting with Premier this year.



WHAT other furnace even begins to give you ALL of the above sales points to use in clinching orders? At that we haven't listed half of the features of superiority embodied in each Premier "De Luxe." Send for complete specifications—no obligation.

PREMIER WARM AIR HEATER COMPANY, DOWAGIAC, MICH.

"The Furnace with Every Famous Feature"

PREMIER DE LUXE

CHAS. F. GOLDSTONE

Menominee, Mich.
Oct. 20, 1927.

I am glad to inform you that on Saturday, October 15th, I went out at eight o'clock in the morning and by two o'clock in the afternoon I sold one 48 and two 57 furnaces, which is not so bad when you consider that I am not a high powered salesman.

I will get \$305.00 for the 48 I sold that morning; \$468.00 for one of the 57's, and \$447.00 for the other one, which were way over my competitors' prices.

I'll tell you, if I only had to go out and sell and do nothing else I could almost cause a riot amongst my competitors.

Yours truly,
CHAS. F. GOLDSTONE

THE HEYSE SHEET METAL WORKS
Incorporated
Colorado Springs, Colorado.

November 12, 1927.

It is now four years since we started installing Premier Warm Air Furnaces and we have yet to receive our first complaint that they are unsatisfactory in any way. Of course this is a comparatively short time, but we haven't had even a grate to repair or replace and the grates show up a furnace about as quickly as any other part.

When we set up a furnace we have no trouble at all as every part fits exactly. One customer came and looked over the Premier Furnace, then went and looked over the furnaces sold by the other six shops in this city, but came back to us and bought the Premier because he said, without our soliciting the information, that it was superior in every point to the other makes of furnaces sold here, and he is a man who has had enough experience with furnaces to know what he is talking about.

Yours truly,

The Heyse Sheet Metal Works, Inc.
By F. E. Heyse.

-is it any wonder Premier dealers make money!

GREEN BAY HARDWARE CO.
Green Bay, Wis.

Nov. 10, 1927.

Just a few lines to show our appreciation of your co-operation and fine line of Premier furnaces.

In order that you may get the right slant on this we will say we have been in the warm air heating business 21 years, some of the members of our organization have as high as 35 and 40 years of practical experience to their credit, being real heating and ventilating engineers.

During all these years we have never had any where near such merchandise and co-operation as your good company has rendered. You are to be congratulated and we trust you will keep up the good work, for if ever there was a line just this very thing, it is the boys in the warm air heating game.

Respectfully yours,
GREEN BAY HARDWARE CO.

SPLAIN & FIRESTIEN

Lincoln, Nebraska,
Sept. 12, 1927.

I must thank you for the Buddy, and at the same time give Buddy credit for working effectively for me last Friday, as we (Buddy and I) sold one D-57 Premier De Luxe, for eight rooms and bath at \$478.50, and you may ship same at your convenience.

Three hundred has been our best price on a job of this type, but of course that was without Buddy or the improved DeLuxe.

Thanking you for past and future favors,
Yours truly,
F. E. SPLAIN.

IF interested in a *real* proposition for the future, one that you can build on year after year, sit down and write us a letter about yourself.

PREMIER WARM AIR HEATER COMPANY, DOWAGIAC, MICH.
"The Furnace with Every Famous Feature"

PREMIER DE LUXE

and
why—

1 Iron will melt where Pecora Asbestos Furnace Cement stands up

2 Pecora makes a permanent tight joint—does not shrink in joints

3 Pecora is Odorless

4 Pecora is Easy to Use

5 No Waste to Pecora—Economical

The Favorite for With Installers and



EVERY furnace of necessity has joints—and the successful clean heating operation of these furnaces depends on the kind of furnace cement used and the proper application of it to make the joints leak proof.

The warm air heating industry has forged to the front in the last few years, getting additional business, building greater prestige and proving its claims for better heating, more healthful and economical heating, and cleaner heating.

The manufacturers and installers who have gained most have watched this growing public interest and have paid strict attention to *proper cementing*.

Every furnace installation will fail if the cement does not hold up.

Pecora Asbestos Furnace Cement has been the leading favorite with Manufacturers, Installers and Jobbers for over Sixty Years.

PECORA PAINT

4th and Erie Ave.

Established 1862
by Smith Bowen

Sixty Years



Jobbers Manufacturers

THE leading manufacturers use and recommend Pecora exclusively because they know it holds. They know the importance of tight joints.

Pecora Asbestos Furnace Cement withstands intense heat—in fact Pecora stands heat that will melt iron.

Pecora is also odorless—no odors to contaminate the air in the home.

Pecora is extremely easy to use—making proper application possible.

Pecora does not shrink in joints—therefore makes joints permanently tight.

There is no waste to Pecora—the bottom of the can or keg is just as good as the top.

Pecora is sold by Jobbers everywhere.

We want you to test Pecora—FREE of Charge. We know that once you use Pecora (the can with the Red Devil on it) you will see why it is such a big favorite.

We want you to know how Pecora is used for best results and our booklet is free to any one who sends in the coupon.

Read this instructive booklet and be prepared to make your furnaces permanently tight.



**Generous
FREE —
sample**

We want you to know how thousands use Pecora for best results. Try a sample and you will readily see why it is the favorite.

Just sign and mail this coupon for Free sample and booklet today



A. A.

PECORA PAINT CO.,
4th and Erie Avenue,
PHILADELPHIA, PA.

Send us FREE SAMPLE of PECORA
ASBESTOS FURNACE CEMENT and
copy of your instructive booklet

Name _____

Street address _____

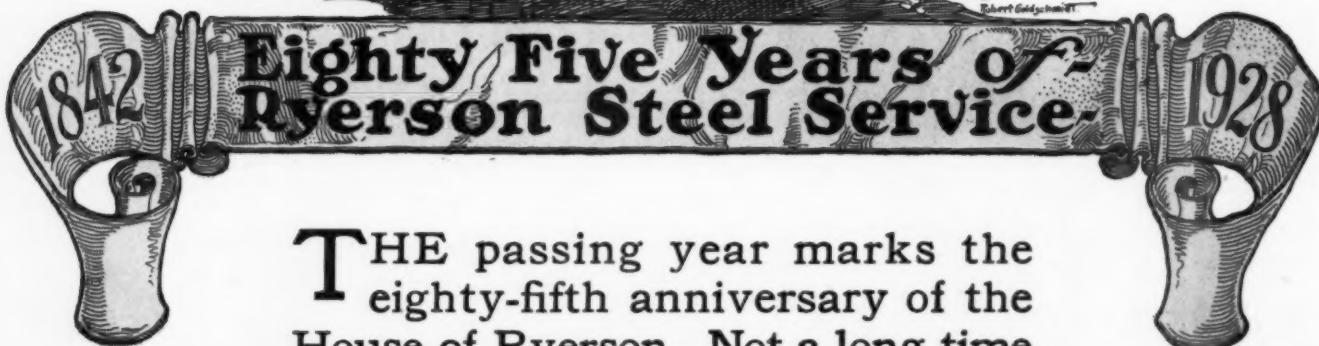
Town _____ State _____

Manufacturer Jobber Installer

COMPANY

Philadelphia, Pa.

Incorporated
1911



THE passing year marks the eighty-fifth anniversary of the House of Ryerson. Not a long time as history goes but long enough to assure experience and dependability and to prove the soundness of the Steel-Service Idea.

JOSEPH T. RYERSON & SON INC.

Plants: Chicago, Milwaukee, St. Louis, Cincinnati, Detroit, Cleveland, Buffalo, Boston,
Jersey City

Representation in: Minneapolis, Tulsa, Houston, Newark,
New York, Denver, Los Angeles, San Francisco

RYERSON

Bars
Shapes
Structurals
Rails

Shafting
Strip Steel
Turnbuckles
Babbitt

Plates
Sheets
Rivets
Bolts

Wire
Chain
Refined Iron
Reinforcing Steel

Boiler Tubes and
Fittings
Firmtread Plates
Alloy Steel

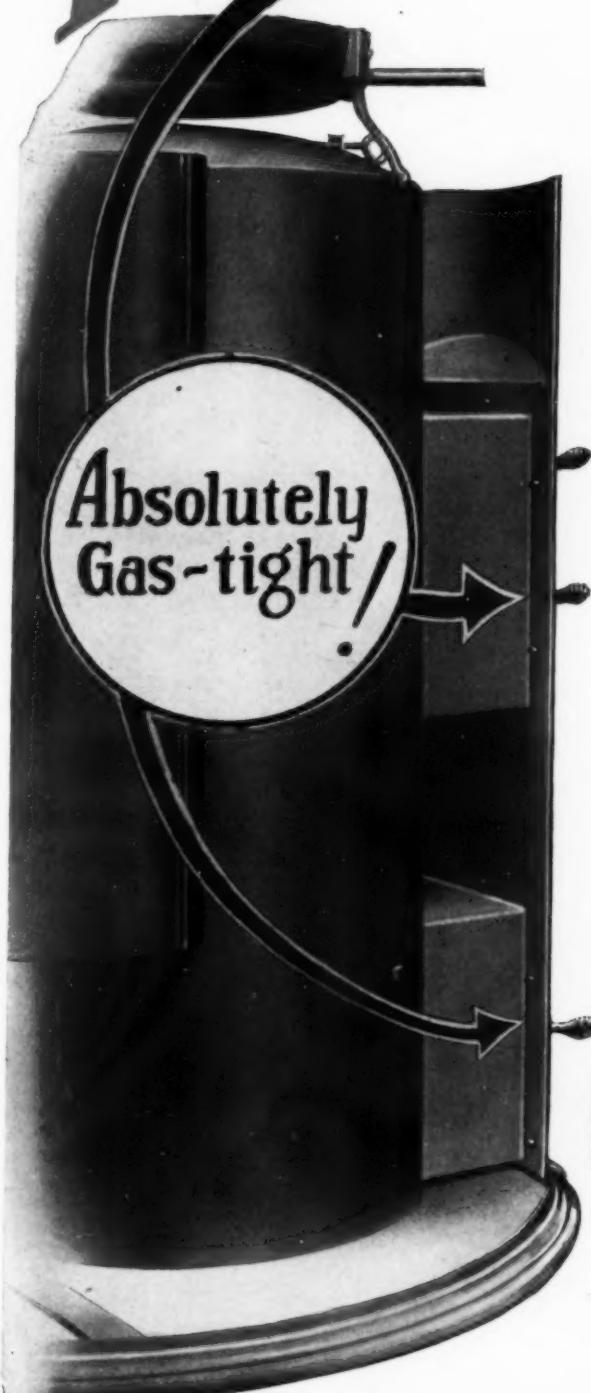
Tool Steel
Ascoloy
Small Tools
Machinery, etc.

Write for the Ryerson Journal and Stock List—The "Key" to Immediate Steel

Mention AMERICAN ARTISAN in your reply—Thank you!

Again in the Lead!

The Final Ounce of Protection!



Waterbury's Entire Front
Now Welded to Furnace Body
in One Seamless Piece

ALWAYS the leader and pioneer in seamless steel, gas-tight furnace body construction—Waterbury announces another great improvement!

We have welded the front panel of the furnace directly to the feed and ash chutes. This makes the entire body, chutes and front a single seamless piece of heavy steel. No bolts within the casing, no gaskets between front and the feed and ash chutes, no cement. The final ounce of protection from smoke, soot, dust and coal-gas!

Easier to install. Door frames come all bolted to front. This is typical of the advancements made in the new Waterbury. Why not sell this leading, 10-year guaranteed, seamless steel furnace? Write us today!

Waterman-Waterbury Co.
1122 Jackson St., N. E.
Minneapolis, Minn.

**WATERBURY
SEAMLESS FURNACE**
REG. U. S. PAT. OFF. PIPE OR PIPELESS

Service!

Complete stocks carried in Philadelphia,
Pittsburgh, Albany,
New Orleans, Kansas
City, Denver, San
Francisco and Seattle.



1928 Unusual Profits *from* Unusual Sales



Two fires instead of one. Note secondary combustion in radiator — consuming smoke and utilizing waste gases.



—the Patented Device which produces the wonderful results secured in the SUPERIOR SUPER-SMOKELESS Furnace.

SUPER-SMOKELESS Furnace Dealers—everywhere—during 1928, will ring up unusual profits from unusual sales.

Un-usual sales do not develop from handling an ordinary furnace.

The SUPER-SMOKELESS is the only Warm Air Furnace that meets point-for-point the exacting requirements of the U. S. Bureau of Mines for complete combustion of soft or hard coal.

It is the *one* furnace in which the home owner can *see* the smoke and gases actually burned.

Moreover, the Superior resale co-operation Utica offers the Dealer, locates prospects, helps close sales, furnishes material estimates—is all designed to ensure lasting satisfaction to the user and unusual profits to the Dealer.

Known quality characterizes the entire Utica line, a furnace for every need, reflecting nearly half a century of uninterrupted manufacture.

A post card will open the way to unusual profits for you!

UTICA HEATER COMPANY **UTICA, N. Y.**

Chicago Branch: 2445 No. Keeler Ave.



SUPERIOR DEALERS ARE EXCEPTIONALLY LOYAL—WHY?

When writing mention AMERICAN ARTISAN—Thank you!

IN PERFORMANCE AND PRICE

*The Outstanding
Steel Furnace
Success of the
Year*

EQUATOR

*Gas-Tight
Steel Furnace*

100%
Increase
Every
Year



**Sell This High Quality Steel Furnace at a Low
Price and Still Make A Satisfactory Profit**

Right there you have the whole secret of Equator success and of the rapidly increasing dealer acceptance. No one can deny the high quality of this furnace. It is equipped with rocking locomotive type grates. The fire pot is lined with two rows of fire brick which can be replaced thru the fuel door if necessary. The radiator or diving flue is also constructed of riveted steel and adds one-third to the heating power of the furnace. The large water pan or humidifier is properly placed over the door cap where rapid evaporation thoroughly moistens the warm air.

The straight vertical walls of the combustion chamber and radiator are self-cleaning. There is no horizontal fire travel in the Equator Furnace where soot and ashes can accumulate and retard radiation. The Equator Gas-Tight Steel Furnace is truly a high quality product, a furnace that will make friends for you wherever it is properly installed. If price competition bothers you, here is your opportunity to overcome it. Here is a quality steel furnace that you can sell at a low price and make a good profit.

You'll want to know more about Equator Gas-Tight Steel Furnaces and we've prepared detailed information which we will gladly send you.

LENNOX FURNACE CO., Inc.

Marshalltown, Iowa

Syracuse, New York

For Further Information

MAIL THIS COUPON

Lennox Furnace Co., Inc.
Marshalltown, Iowa; Syracuse, New York
You may send us complete information
about Equator Gas-Tight Steel Furnace.

Firm Name

Street Address

Town and State

Business you might have got

TO how many house owners who installed radiator systems this season should you have sold warm air jobs? To more than you probably like to admit.

You can get the paying jobs if you sell a thoroughly modern furnace like our new Series "C". Install it according to the Standard Code. Then you can make quality installations at favorable prices that will get the business.

Our proposition will put you in position to take the lead in the warm air heating business in your town. Write us about it.

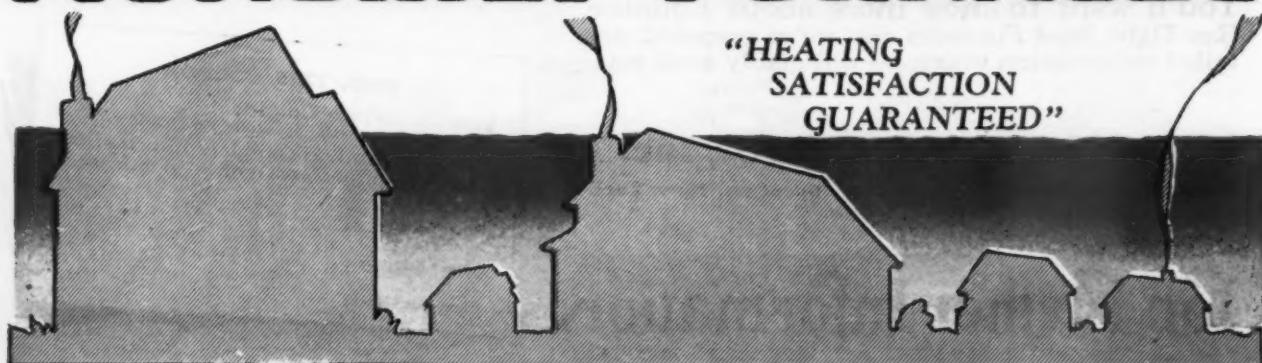
In Business for 31 Years

THE HENRY FURNACE & FOUNDRY CO.
3471 East 49th Street
Cleveland, Ohio

JUST OUT THIS YEAR—

The new SERIES "C" **MONCRIEF FURNACES**

"HEATING
SATISFACTION
GUARANTEED"



Say you saw it in AMERICAN ARTISAN—Thank you!

HALL-NEAL Fin-Radiation FURNACES

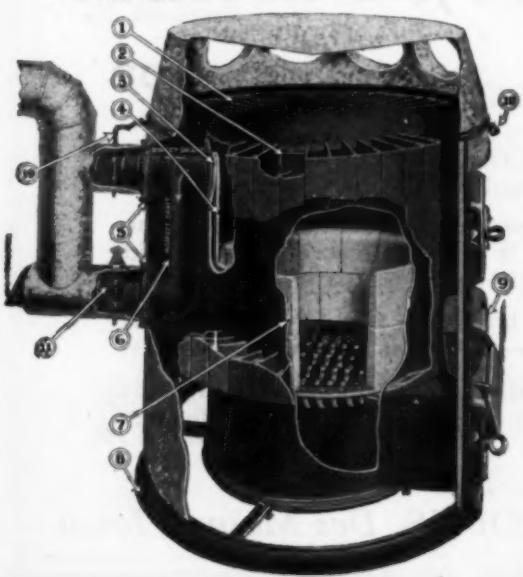
Intercepting Heat Conveyors
Patented Jan. 2, 1923

Special Advantages Dealers Find in HALL-NEAL Fin-Radiation FURNACES

1. Only 63 inches high over all.
2. One man can set up.
3. Passes through any stairway.
4. Easier, faster assembly.
5. No cutting or fitting of casing.

The illustration below shows some of the LIFETIME quality features in Hall-Neal Fin-Radiation Furnaces:

1. Intercepting Heat Conveyors (Pat. Jan. 2, 1923) are an advanced radiator design giving remarkable increases in furnace efficiency. This new type radiator cannot clog up with soot.
2. The Intercepting Heat Conveyors are mounted on each side of the furnace simply by hanging them on welded hooks.
3. The strongly reinforced flanges holding the flue section to the furnace are air-tight, smoke-tight and gas-tight.
4. A heavy plate at the point of greatest fire strike protects the furnace against all possibility of damage.
5. Where the flue connections pass through the furnace casings, gas-tight, smoke-tight and dust-tight flanges are used.
6. The flue connection provides a direct draft to start a fire quickly and diving draft for greatest heating efficiency when the fire is well developed.
7. A 2-inch lap joint between the two sections, 7 inches below top of fire brick, insures against smoke or gas entering the circulating air.
8. The base ring of the NEW VICTOR Furnace is one-piece casting of such great strength that the furnace may be mounted over a pit if desired without using a supporting pillar in the pit.
9. The water pan is conveniently placed and of large size.
10. The flue damper is controlled from the front of the furnace, by a simple and positive device which is easily and quickly adjusted as required.
11. Lower smoke damper is to be adjusted according to strength of draft and fuel used, and does not require further attention.
- The fire bowl is lined with heavy fire brick, closely fitted, giving an average length of service of 15 to 18 years without replacement.
- See one Victor Furnace in operation and you will be convinced.



More sales-better profits for good furnace dealers

A HALL-NEAL Furnace with its exclusive, patented FIN-RADIATION, installed according to the Standard Code of the National Warm Air Heating and Ventilating Association, gives the finest home heating plant that can be had.

And such a plant is within the reach of every pocket-book. No home owner needs to be without this greatest home comfort and health insurance—a real warm air plant that heats every room in the house.

The advantages of the exclusive, patented improvement in radiation provided in Hall-Neal Furnaces by the Fin Sections shown in the illustration have been proved by accurate tests, and thousands of installations.

Every furnace dealer can make more sales, get a better price with good profit, and build more good will for his business selling Hall-Neal Fin-Radiation Furnaces in Standard Code Installations.

We give good dealers exclusive territory—Write us and get full information, to see how good a business opportunity the Hall-Neal dealer franchise gives you.

HALL-NEAL FURNACE COMPANY
1322-32 N. Capitol Ave. INDIANAPOLIS, IND.

Mention AMERICAN ARTISAN in your reply—Thank you!



The NEW COLONIAL — the 100% Furnace

Type O

Gas Tight

Grey Iron

THE NEW COLONIAL Type O, has been called by dealers, the 100% Furnace.

With the furnace is the 100% Casing. One man can put it on with a screw driver and it fits absolutely tight.

Coupled with the NEW COLONIAL is a real Selling Plan---one that produces results.

If you are wanting to make 1928 your Biggest Furnace Year, write us at this time for the 1928 Agency.

1. One Piece Base
2. Independent Grate Bars
3. Air Blast Fire Bowl
4. Dome Walls Slope Over Fire
5. Down Draft Radiator
6. Big Double Fire Doors
7. Properly Located Humidifier
8. Body and Ash Pit extending thru front.

GREEN FOUNDRY & FURNACE WORKS, Des Moines, Iowa

SALES POINTS and SATISFACTION

HOW much easier it is to sell when you can, point by point, prove that the Hero Furnace is "better than" competitive lines! We really believe that these eight points make Hero the easiest furnace to sell—because they assure owner satisfaction. Just check these points—

- 1 Extra size radiator that assures use of all the heat.
- 2 Upright shaker handle.
- 3 Roller type grate — combination dumping and shaking.
- 4 Full floating front.
- 5 Wave top combustion chamber—added heat through "rolled" flame.
- 6 Deep, interlocking gas-tight cup joints.
- 7 Corrugated fire pot to give extra heat surface.
- 8 Hero Air Washer and Humidifier System—the only one adding sufficient moisture to the warm air.



HERO ^{SERIES} ₆₀₀ FURNACES

Are recognized leaders, and the Hero franchise today is more valuable than ever. We suggest that you write us if you want to put your furnace business on a sound, profitable basis.

HERO FURNACE CO. SYCAMORE, ILL.

NIAGARA

FURNACES

**SALES
PROFITS
for**

1928

**NEW FRIENDS
NEW BUSINESS ~**

EACH new year finds an increasing number of
NIAGARA DEALERS

The handling of this excellent equipment inevitably
leads to increased furnace sales and greater profits.

If you are not already representing this nationally known
furnace in your territory and desire to better your con-
nection for 1928—write us or wire at once.

We will help you make 1928 your Banner Sales Year.

THE FOREST CITY - WALWORTH RUN FOUNDRIES CO.

Cleveland, Ohio

Manufacturers

of

*Monarch
and*

NIAGARA Furnaces

Mention AMERICAN ARTISAN in your reply—Thank you!



COL-BURN HEATER

**Sells - Sells - Sells
with Multiplied Profits**

**An efficient, complete heating unit
built for Standard Code installation.**

Attractively priced ↗ Saves 20% to 30% of coal costs
↗ Burns any kind of coal ↗ Delivers clean heat ↗
Requires minimum attention ↗ Boiler plate steel,
welded soot, gas and oil tight.

One Col-Burn in a neighborhood means there'll soon be more Col-Burns. Ask us for copies of the letters Col-Burn users write to us.

Special Dealer Policy

The Col-Burn Dealer Policy is of the utmost importance to every man who ever has sold, or who ever expects to sell, a furnace. Write for details today.

**Col-Burn Heater Co.
1955-1975 North Long Ave., Chicago, Ill.**

Mail Coupon Today

When writing mention AMERICAN ARTISAN—Thank you!

COL-BURN HEATER CO.,
1955-75 North Long Ave.,
Chicago, Ill.;
Send me literature describing the Col-Burn
Heaters and details of your Special Dealer
Policy.
Name _____
Address _____



An entirely new furnace combining all that is best in furnace construction — with many improvements not found in any other furnace —

DIRECT one-piece dash pit with throat carried through front.

CLOSED pattern rocking grate, with upright shaker. Easy to operate. Easy to replace.

STANDARD heavy ribbed fire pots with covered joints.

Over-sized combustion dome, with throat carried through front.

HERE'S the real Standard Code furnace—the logical furnace to sell with Standard Code installations. That's a strong selling point, too, on your Code installations—a real Code furnace.

This new furnace was designed to *more than meet* the requirements of the Code—the size of the casing and the relation of radiating surface according to Code specifications.

The Grate Areas and Heating Surfaces on all Floral City Furnaces and the Ratings according to the Standard Code are attested by the National Warm Air Heating and Ventilating Association.

Write for full details and prices now—Start 1928 with the agency for the New Floral City Furnace—the Standard Code furnace—

LARGE one-piece radiator, with direct-indirect draft damper.

AMPLS water pan grooved into front frame so it cannot tip.

Doors made of cast iron, ground, making them a perfect fit and interchangeable.

SPECIAL hot air blast feature that is very effective.

**Floral City Heater Co.
Monroe,
Mich.**

CHICAGO OFFICE
1654 Monadnock
Building

DETROIT BRANCH
4452 Cass
Ave.

Mention AMERICAN ARTISAN in your reply—Thank you!

BUSINESS goes to the fellow who "hits the ball" the hardest—
BUT—even Babe Ruth couldn't hit a "loaded pill" over the fence—
LEARN the reasons why you'll get more breaks in the furnace game if you switch

to



BRILLION FURNACES

THEY are not "loaded down" with immense overhead—no big executive salaries are tacked on the selling expense—no big unproductive expenses are piled on to the selling price. Brillion furnaces are "loaded" only with plenty of quality and weight of castings, fine workmanship and features that mean something and sell. Look it over—the illustration shows many of its excellent features—AND, remember our sales and manufacturing methods are different, which gives you a *high grade* product at a fair price. *When Henry Ford wanted to heat hundreds of homes he chose the Brillion—Why?—High quality at the right price.*



BRILLION VACUUM PORTABLE FURNACE CLEANER

A BRILLION quality product that is making good for many furnace men. The Brillion Vacuum Portable Furnace Cleaner is sturdily made of cast aluminum, with flexible metal hose adaptable for all styles and sizes of furnaces and boilers. It is light in weight, adaptable for a one man job and can be conveniently carried in any small car. It operates from any ordinary light socket. No dirt or dust while cleaning—once you serve your customers the Brillion way you serve them always.

Large profits, and it puts you in touch with repair jobs and furnace replacements

MANY dealers are grabbing the Brillion for furnace cleaner business because of its advantage in getting into prospects' houses, as well as for the cleaning profits. Canvass your territory for furnace cleaning with the Brillion and you'll learn more about your furnace sales possibilities than you ever did before

Your start at "hitting [the ball] harder in 1928 is right here and NOW--Just "hit the ball" at the right with your pen--You'll be OUT after better business when you get the Brillion story of "Better breaks in the furnace game."

BRILLION FURNACE COMPANY
200-300 Park Ave., Brillion, Wis. 17 N. La Salle St., Chicago
BRILLION, WISCONSIN

BRILLION
FURNACE CO.

200-300 Park Avenue
Brillion, Wis.

Send me full details on
BRILLION FURNACES
BRILLION VACUUM
PORTABLE FURNACE CLEANER
also your latest catalog

Name _____

Address _____

Judge Furnace Values by these Features



Heavy steel construction,
riveted and caulked, absolutely gas tight, stays tight.
One-piece non-breakable steel front.
Outside shaker handle—waist high.
Quickly and easily installed.
Excellent for oil burners.

Riveted Steel—Moderately Priced

- Feed pouches extend entirely thru front.
- Grates easily removable through feed doors. No cog wheels, bolts, cotter pins or screws.
- Gravity type damper, self closing, positive closing.
- Three flue crescent radiator, for long gas travel.
- Radiator bracket eliminates all strain due to expansion and contraction of radiator.
- Combustion chamber and gas passages are self-cleaning.



THE
MARSHALLTOWN
LINE

MARSHALLTOWN HEATER CO.
MARSHALLTOWN, IOWA.

Your 1928 Line to Prosperity

But you must be set to capitalize on these good times by having a strong agency.

YOUR LINE

You should have a line of warm air heating equipment that fills every need—all under one well advertised name. HOMER fills the bill. Latest improvements, technical and practical, characterize the HOMER line.



HOMER "GRAND"



HOMER "ACE"



HOMER "STEEL KING"



YOUR SALES PLAN

How will the public know of the advantages of your service if you do not tell them? HOMER provides all year round advertising to place in every home. No prospect is overlooked. Get the details of how this will operate in your town.

HOMER—THE COMPLETE AGENCY

Plan with us for a Greater, more Profitable Business

HOMER FURNACE CO., Coldwater, Michigan, U. S. A.

Capacity over
30,000 Furnaces
Annually

"What's home
without a Homer?"

There's Harmony
in Homer Heated
Homes

December 31, 1927

Has Your Factory

Chicago Representative
L. O. Brannan

OFFICERS
 J. F. Janes, President
 J. C. Miles, Vice Pres.
 L. M. Uhl, Sec'y-Treas.

The WARM AIR FURNACE FAN Company

Heat with forced air-

West Coast Representative
F. H. Mason

DIRECTORS
 J. F. Janes, President
 J. C. Miles, Vice Pres.
 L. M. Uhl, Sec'y-Treas.
 J. A. Krider, Treasurer
 Thompson Products Co.
 P. J. Morgan, Pres.
 Morgan Litho. Co.

To All Furnace Manufacturers,
 Distributors and Dealers:

We are happy in the thought of our continued friendly relations and wish to assure you of our great appreciation of your splendid acceptance of our product and also to thank you for the very cordial reception extended to our representatives.

With holiday greetings, we are,

Very truly yours,

The Warm Air Furnace Fan Co.

President

Supplied You with This New Book?

Salesmen now using
it are making
Greater Sales

It will help you to greater furnace sales. This new book, especially prepared for furnace salesmen, contains reliable, up-to-the-minute information on one of the most recent and important market discoveries made in warm air furnace selling.

It is designed for the man who wants to increase his sales in units and in dollars. It analyzes warm air furnace markets clearly and simply. It points out where you can reasonably expect to find your greatest possibilities of increase.

Over sixty manufacturers have ordered this book for their salesmen. Fifty-eight more have requested sample copies.

This new book supplies you with facts, figures, experiences, testimonials, illustrations and practical data that buyers are hungry to have you give them.

It gives complete, reliable data on the most discussed and far reaching development in warm air furnace heating. Until now no such massed data has been available.

Already hundreds of furnace salesmen have written us that this book contains precisely the information they need. It boils down and summarizes in readable form what it would take many books and many hours of time to gather, even if it were available from other sources.

How to get a copy of this book

This book is not sold or furnished direct to salesmen. It can easily be secured by writing the officials of your own company and asking them to kindly get a copy of the "FORCED AIR HEATING DATA BOOK" for you.

Each copy is registered in our office so that additional bulletins issued from time to time can be furnished you. It bears the name of the salesman for whom it is intended. It has a substantial flexible cover and holds 8½ x 11 sheets. We keep it up-to-date for you. We supply additional data as developed. Easily carried in your grip. Constantly studied, it will help you to make more furnace sales.

THE WARM AIR FURNACE FAN CO.
6521 Cedar Ave. :: :: Cleveland, Ohio

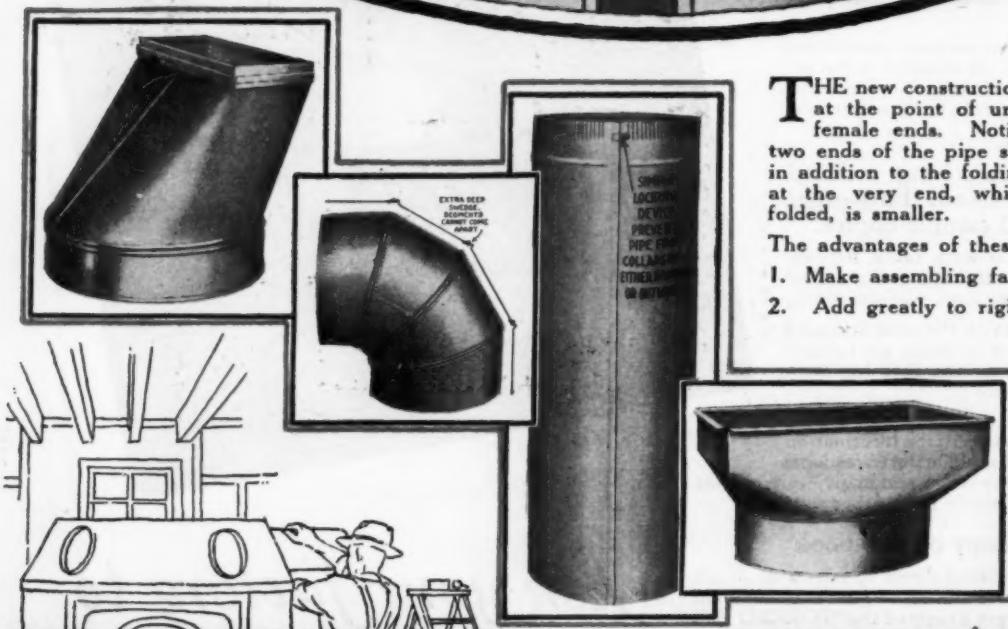


*Ask your factory to
get you a copy..*

It is naturally not our desire to be arbitrary about furnishing this new data book. We can place it only in the hands of salesmen whose employers believe in and endorse the idea it contains. Another course would be impossible. Therefore, if you have not been supplied, write your house tonight and say "please get me a copy of the FORCED AIR HEATING DATA BOOK".

MILES AUTOMATIC FURNACE FAN

Announcing Contest



THE new construction affects the pipe or fittings at the point of union on both the male and female ends. Notice the folded edge on the two ends of the pipe shown above. See also that in addition to the folding, the female end is larger at the very end, while the male end, likewise folded, is smaller.

The advantages of these features are:

1. Make assembling far easier and 5 times faster.
2. Add greatly to rigidity, giving the strength of much heavier gauge than you actually pay for.
3. Minimize damage or distortion in handling due to increased strength and protected ends.
4. No raw edges to cut hands in assembling or adjusting elbows.

LAMNECK SIMPLIFIED PIPE AND FITTINGS



No Added Cost!

Although our production costs are increased with the new construction, we are not making any extra charge for this feature. Use the coupon to the right for prices and catalog.

Name and Awards

**"LAMEDGE" Is Winning Name Selected
For New Lamneck Construction Feature.
Judges Are Weary After Stormy Session.**

EVER been judge in a contest? If not, then you cannot appreciate the trials and tribulations thereof. Up toward a thousand names came through the mail from every section of the country—suggested names for the new LAMNECK Construction Feature which will be used on all round tin pipe and on the round end of all tin fittings after January 1st.

The difficulty in selecting the winners lay, not in the number submitted, but in the number of good names suggested. It made choosing an arduous task and the cause of much heated discussion. Many a name at first reading sounded even better than the one finally selected, but most of them when broken down did not, in the opinion of the judges, suggest the proper function of the new feature, or, were not euphonious as trade names or, did not from one standpoint or another seem to exactly fit the bill.

THE WINNERS

The name selected for the first prize award, although not as catchy, perhaps, as others submitted, does, in the opinion of the judges, suggest the affected part as well as the maker—both of which are important from a trade-name standpoint. In all probability, both the first and second prize winning names will be used, however. The five winners are as follows:

- \$50.00 Award (LAMEDGE) to Mr. L. E. Williams, 734 10th St., N. W. Washington, D. C.
- \$30.00 Award (JIFFY-JOINT) to Mrs. Tessie Davies, Mineral Ridge, O.
- \$10.00 Award (EZ-Y-ON) to C. A. Bangert, 201 Main St., London, Ohio.
- \$10.00 Award (DUOFOLD) to John Temple, 101 Lacock St., N. S. Pittsburgh, Pa.
- \$10.00 Award (TRUFIT) to Hazel B. Shor, 41 Columbia St., Worcester, Mass.

The number of women contenders for the prizes, (undoubtedly wives of our fellow tradesmen), was a surprise to the judges, and the character of their suggestions even more so. Two of the five, you will note, go to women, and there were a number of others which were close runners-up. After seeing the character of the suggested names as a whole, the judges were sorry, indeed, that fifty awards could not be made instead of five, and they can only thank all participants for their interest in the contest as well as the unusual amount of interest and enthusiasm displayed in the construction itself.

Letters have come in from every section of the country congratulating The W. E. Lamneck Company on the development of this new patented feature, predicting its rapid adoption by the trade generally. Its advantages and detailed description are given on the opposite page.

THE W. E. LAMNECK CO.

416-432 Dublin Avenue
Columbus, Ohio

LAMNECK

SIMPLIFIED
PIPE AND
FITTINGS

The W. E. Lamneck Company,
416-432 Dublin Ave., Columbus, Ohio.

Gentlemen:

Without obligation, please send me Catalog; Latest Discount Sheet; Sample.....
with new construction.

Name
Firm Name
Address

No Friction Here or There



THE one REAL improvement made in warm air pipe in recent years was the re-designing of

Handy Pipe

so as to eliminate choking at the turns by removing all sharp angles and giving the warm air smooth, easy curves to sweep around---exactly as the hard-road turns are now being laid. (We'll send a sample on request!)

EXTRA!

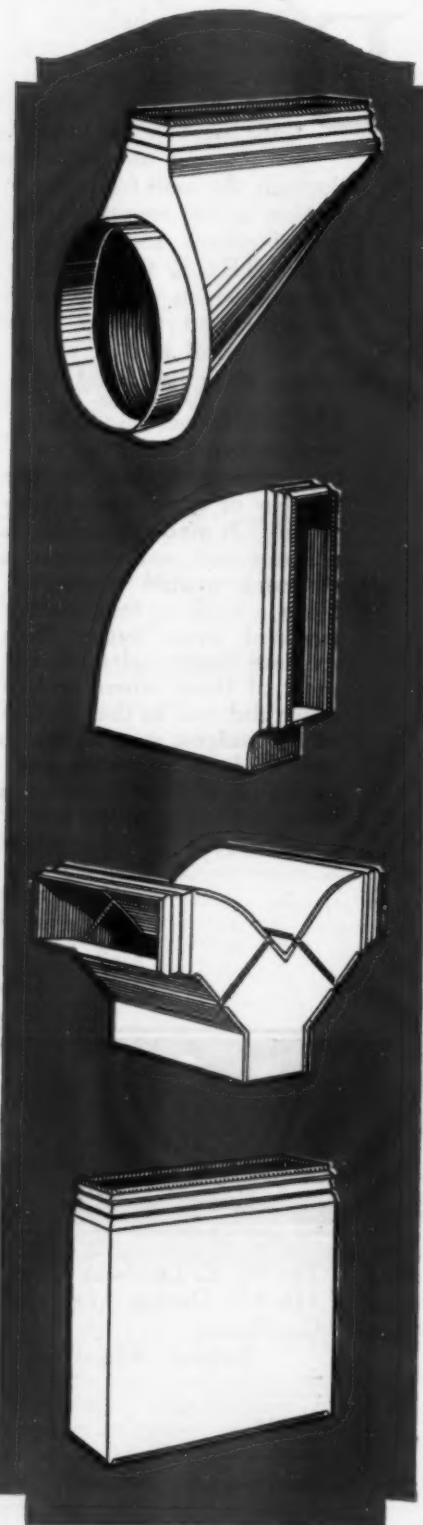
WE now announce that we are able to supply HANDY FRICTIONLESS furnace pipe and fittings (both single and double)

AT GREATLY REDUCED PRICES

Write us for our latest discount sheet —you'll be surprised!

Add to this important feature, the superior QUALITY of HANDY pipe—the fact that it is UNION MADE BY MEN who are paid wages worthy of MEN—the ease with which a maximum of work can be accomplished—and the quick-availability of it from many jobbers, and it becomes easy for you to decide that

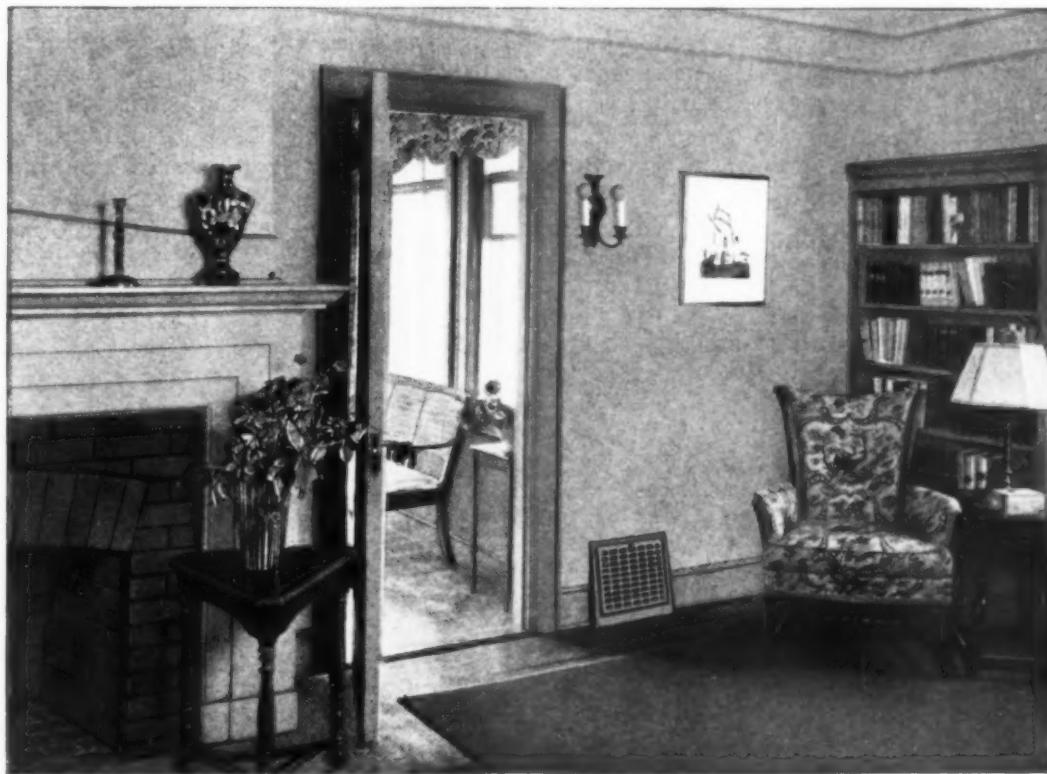
"The Handy Pipe People Are A Mighty Good Bunch To Tie To In 1928"



F. Meyer & Bro. Co.
Peoria Illinois







ANNOUNCING

The Ultimate in Baseboard Registers

THIS new baseboard register is introduced to match, in design, the immensely popular T&B "Cobble" Register and "Cobble" Cold Air Face. Aside from possessing every modern improvement in warm air registers, it embodies many distinctive, practical advantages, such as additional face sizes and throat depths to fit all standard stackheads made. Style 902 is a two-piece Baseboard Register made entirely of heavy gauge open-hearth steel. Flange is formed in one piece and face fits snugly, preventing leaks and streaky walls. Center fan movement is easily operated and absolutely positive. With the beautiful line of exclusive T&B finishes, Style 902 is truly a Super-Baseboard Register.

TUTTLE & BAILEY MFG CO.

Established 1846

441 LEXINGTON AVENUE

NEW YORK CITY

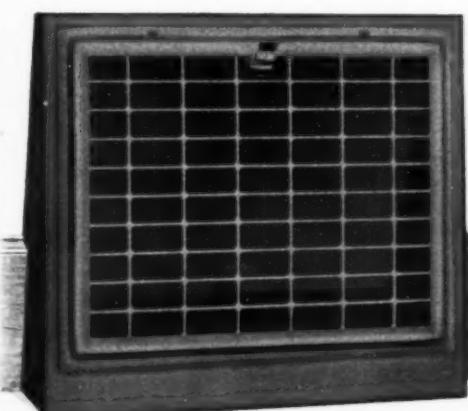
1123 West 37th Street
Chicago, Ill.

704 East 18th Street
Kansas City, Mo.

Our oblong mesh,
in addition to its
highly artistic ef-
fect, provides

EXCESS CAPACITY

and the strength re-
quired to stand up
under everyday use.

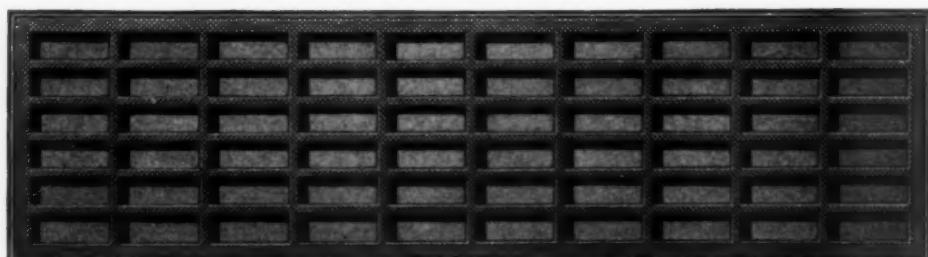
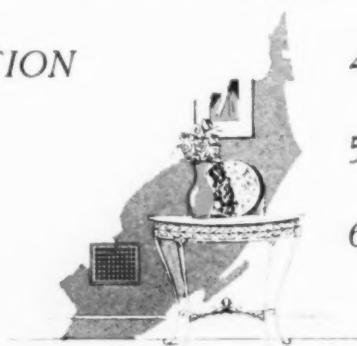


T&B Super-Regs have been accorded such wide approval because this House recognizes the importance of *appearance* in the sale and everyday satisfaction of warm air registers. Beauty in the modern home is as essential as mechanical efficiency—and the T&B Line of Super-Regs offers both! The beautiful and practical finishes of T&B Super-Regs are contributing much in the promotion of warm air heating, consequently increasing furnace sales. In the room illustrated on the page opposite, our new baseboard register is shown finished in TANBO ANTIQUE—suitable for most dark interiors. TANVORY finish blends easily with most light color schemes. Sales opportunities await you in these and other features of the T&B Line.

Our new trade name, "Tuttle & Bailey Super-Regs," was chosen because of the line's unquestionable leadership in—

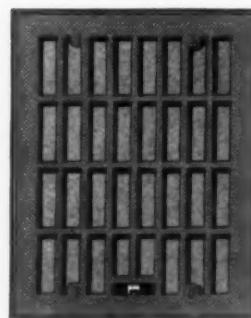
1. CONSTRUCTION
2. CAPACITY
3. DESIGN

4. APPEARANCE
5. MOVEMENT
6. PRACTICABILITY



Style C "Cobble" Cold Air Face in Tanbo Antique Finish

OUR "Cobble" Registers and "Cobble" Cold Air Faces have been acclaimed everywhere as being among the most helpful developments of recent years. This is due to the fact that in designing and making the "Cobble" Line, everyone from dealer to user was taken into consideration. These registers and faces are *cast*, providing strength and ruggedness. Tiny cobbles over



Style 80 "Cobble" Floor Register finished in Tanbo Antique

the surface prevent foot-slipping and receive all wear, preserving the finish applied to the main facing. Rolled edge and narrow rim, which eliminate special recessing, reduce installation time and labor. Dealers not acquainted with "Cobble" Registers and Faces are passing up an opportunity for greater sales, real customer satisfaction.

TUTTLE & BAILEY MFG CO.





The CHAMPION Line

of



Made in both single and double wall, with and without deep flange. Wide secure straps enable you to install this stackhead quickly. The floor line is built in—not soldered. Sample box for any baseboard register sent without obligation.



FURNACE PIPE AND FITTINGS

"Champion Double wall pipe and fittings help me sell furnaces." That's what hundreds of practical furnace men will tell you. The double lock joint—an exclusive feature of Champion pipe—makes installation quicker—easier—more profitable. And it also makes a more efficient heating plant for your customer.

Here is a Champion that has been in the ring for twelve years, and is going stronger than ever. Send for our 1928 catalog of pipe and fittings and our profit-producing prices—now.

The New Champion Adjustable Elbow

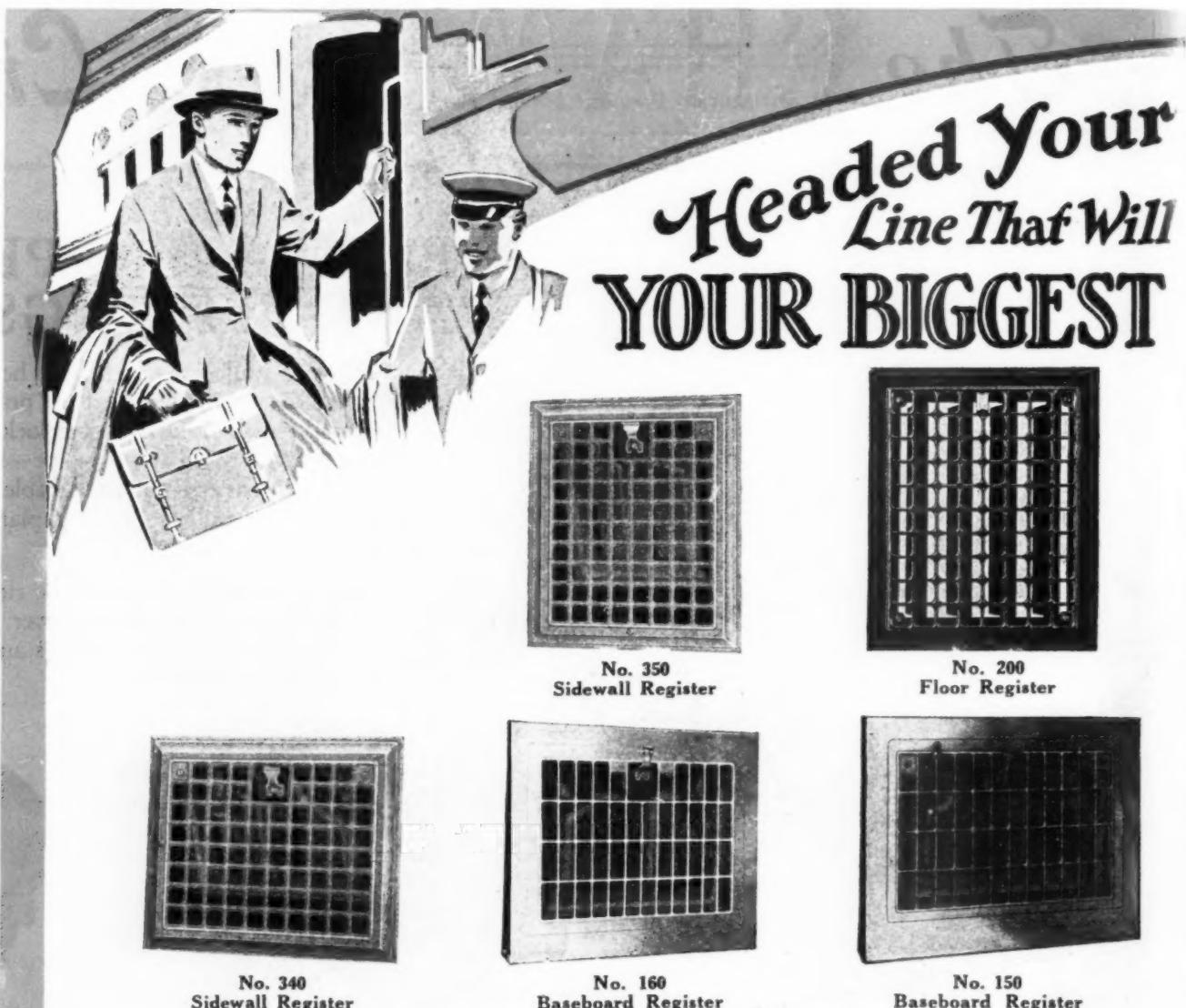
—Entirely different from any elbow ever made. Riveted with our new special riveting machine, not flattened in a punch press, this new double headed rivet will never come apart—it simply cannot let go. The crimp is the famous fine crimp with slightly turned over edge, which makes it fit into the pipe as smoothly as the cap on a fountain pen. Made in I.C. and I.X. Tin and in 22, 24 and 26 gauge non-peeling galvanized iron. All popular sizes.



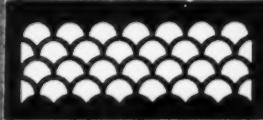
Chas. Johnson Co., Inc.



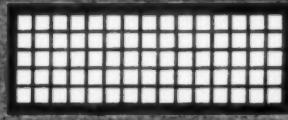
918 S. Adams St., Peoria, Ill.



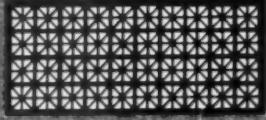
THE HART & COOLEY MFG. CO.,
NEW YORK, 501 Fifth Avenue — PHILADELPHIA, Real Estate Trust Bldg.



Grille No. 578



Grille No. 576



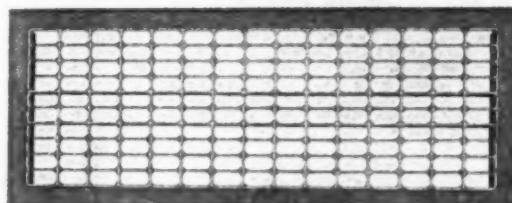
Grille No. 573



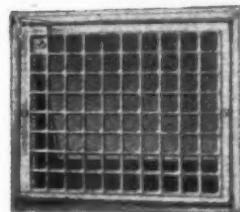
REGIS

the Air Capacity Line

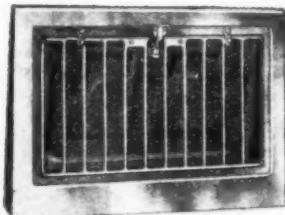
Way with Make 1928 a **PROFIT YEAR!**



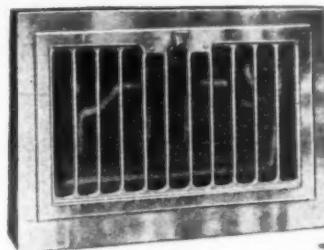
No. 255
Cold Air Face



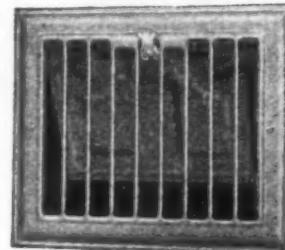
No. 345
Reversible Sidewall Register



No. 170
Baseboard Register

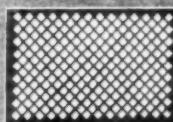


No. 190
Baseboard Register



No. 390
Sidewall Register

NEW BRITAIN, CONNECTICUT
CHICAGO, 61 West Kinzie Street (Western Warehouse at Chicago)



Grille No. 572



Louvre Grille No. 590



Wire Grille No. 127

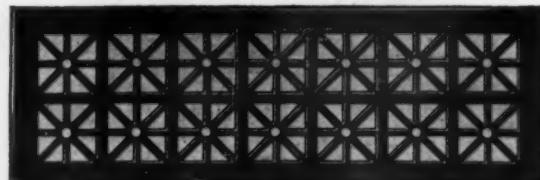
H&C

TIERS
the Air Capacity Line

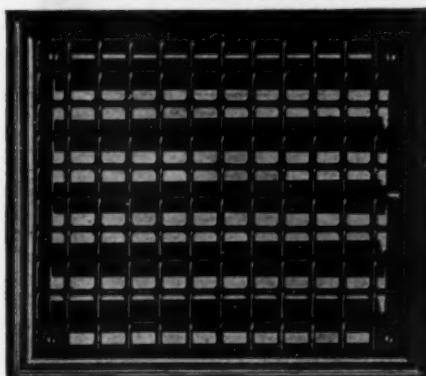
Aueristocratic Registers

By

AUER



Wrought Metal Grilles—Made in Many Designs for Radiator Enclosures and Ventilating Purposes.



Floor Registers
Semi-steel and all-steel in all sizes
and finishes.

Practical--Beautiful

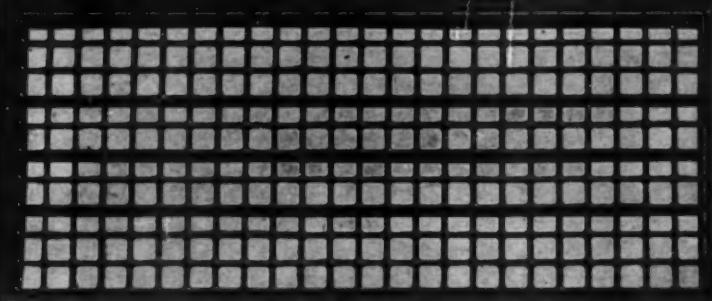
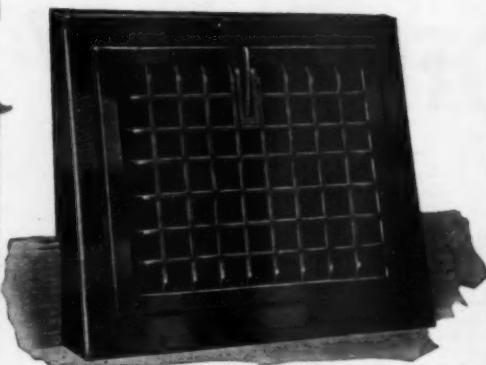


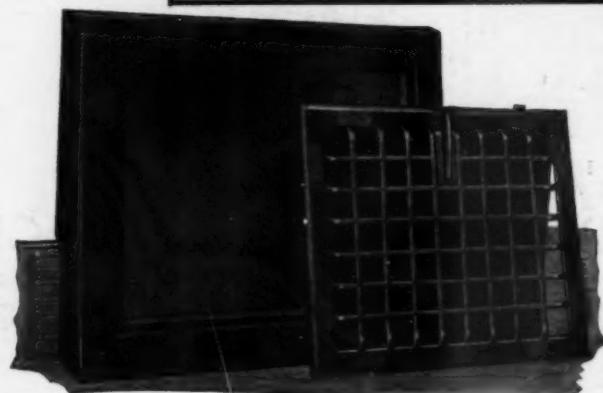
Fig. T Face—Specially constructed steel Cold Air Face—made in practical sizes.

Write
for
Register
Book No. 27



"The Aristocrat"

THE finest type of register, combining air capacity, decorative and concealing features. Conforms to the Standard Code in sizes, depth of flanges, height from floor to register opening. With the Patented Auer Perfect Operating Adjustment of course. Easy to install too.



"The Colonial"

ALL Auer Baseboard Registers are equipped with Auer Patented Permanently Perfect Operating Adjustment and have Greater Air Opening.

Each a creation of harmony in Protection, Beauty, Concealing Features, Air Capacity, Quality, and Practical Installation.

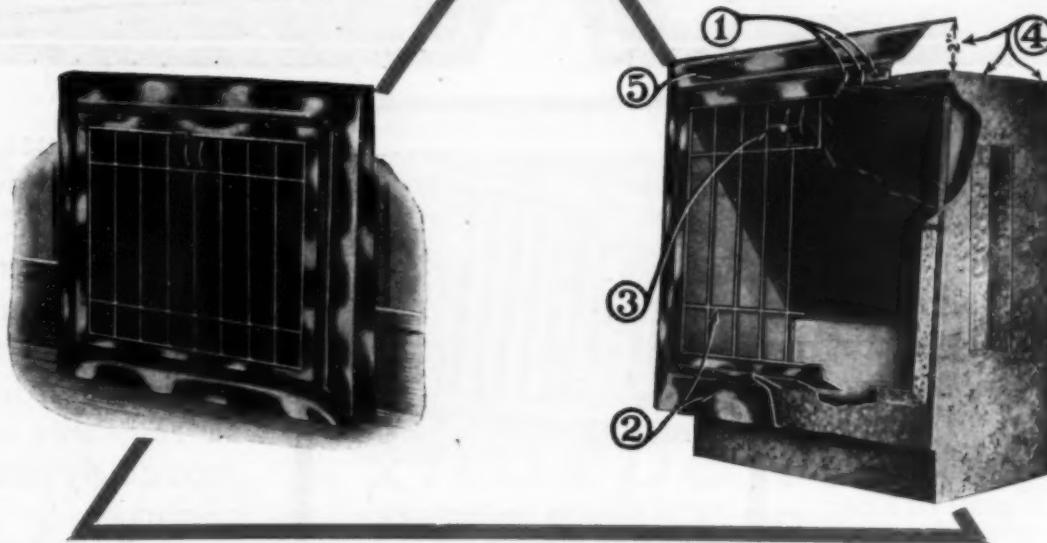
You'll Use Auer Registers
Eventually

The AUER REGISTER CO., Cleveland, Ohio

Mention AMERICAN ARTISAN in your reply—Thank you!

You Sell More Than Air Capacity with Registers

NO STREAK Registers have that and the important features of Attractive Design and finish which make them a desirable part of the permanent Home Decorations.



MORE Furnaces can be sold at better Profit with this Line and your installations made easier by noting these facts.

1. Expanding Interlapping Slip-joint connection which prevents the air from streaking the walls..
2. Steel frame and Removable Grille, having Over-Capacity Free Air Opening.
3. Malleable Lever easily operated by Hand or Foot, Absolutely Trouble-proof.
4. Galvanized, tin lined box having Floor line, Wall line and Recessed top collar. Note 2 inch trimming space around box.
5. Easy fastening by two large Oval head Bolts.

Step up your Selling Methods to 1928 Standards by getting the NO STREAK Story Today.

Rock Island Register Co.,
2435 5th Ave.
Rock Island, Ills.

R. I.

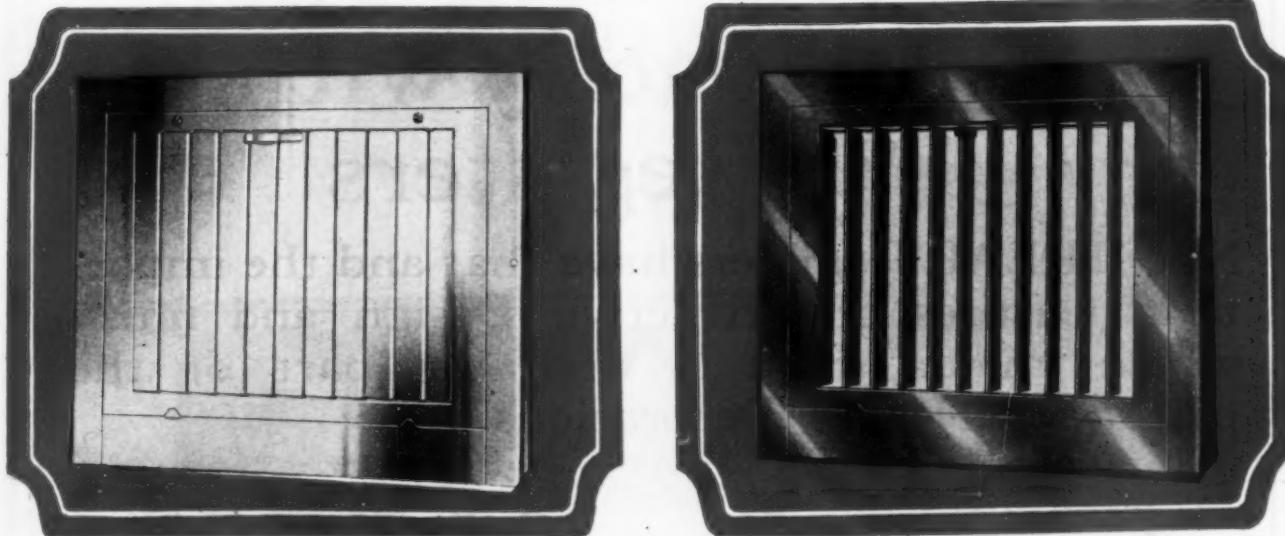
Register Co.
Rock Island, Ill.

Send me your complete catalog and price list.

Name _____

Address _____

The Truly Fine Register



NOTHING like it—the design is distinctly different—notice the illustration above shows the shutters closed, making a most attractive appearance.

It is always clean, because it is easy to keep clean.

The simplest operation—and one that allows positive air flow control.



THE face of the New Standard is secured by two screw heads and is easily detachable. The operation is extremely simple and fault-proof. Shutters are of polished steel and finished same as register. The easiest register to keep clean. Constructed of the highest grade durable material and made in all sizes to conform to the Standard Code.

THE illustration above shows the New Standard Register with shutters open. No doubt about maximum air capacity—absolutely minimum air resistance and yet exceedingly neat in appearance.

Finishes may be had in all standard colors to match modern interior decorating.

Design And Quality Inspired By The Standard Code

THE Standard Register is named for the Standard Code—it conforms to Standard Code specifications in all respects—sizes, design, principles and quality.

It is a popular register—a fully guaranteed register that will make easier and better sales for you. Write today for attractive prices and our illustrated catalog.

WATERLOO REGISTER CO., WATERLOO, IOWA
Seattle, Wash., Office, 2211--1st Ave.

New Standard
STEEL BASEBOARD REGISTER

When writing mention AMERICAN ARTISAN—Thank you!

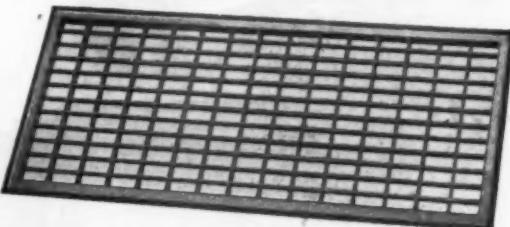
"FABRIKATED"

COLD AIR FACES

82% Open
Area

"Fabrikated" construction differs from others. The outer frame is of angle steel, the grille of strip steel set upright.

New



Now made
with beveled
edges

Will not sag or change shape in use

WILL not break. Rigid. And they have 82 per cent. open area. This means that only 18 per cent. of the size of face is obstructed by the cross bars, the entire balance being open and free for the air to pass through. Smaller sizes may be used. This economizes in floor space; the first cost is less.

Any Size Any Finish

You certainly should look into "Fabrikated"

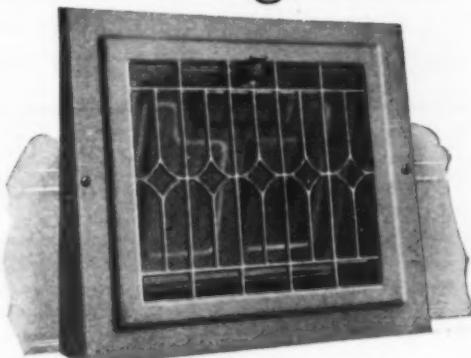
New Independent Base-board Registers

Greater than usual open area.

Combined with attractive and distinctive design.

Simple and permanent valve adjustment.

Made in all leading sizes and in varying flange depths.



May we send you our New 1928 catalogue?

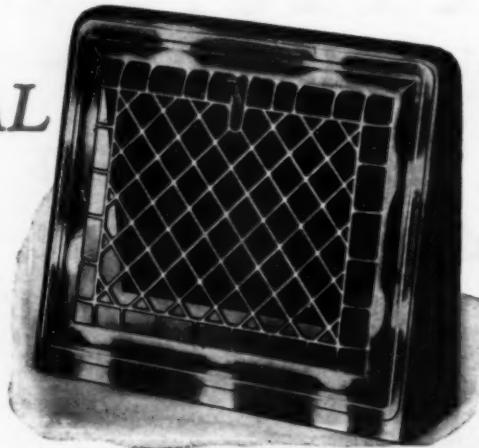
Independent Register and Mfg. Co.

3741 East 93rd St., CLEVELAND, OHIO

New York State Branch: 150 Colvin St., Rochester, N. Y.

"DRESS UP" your WARM AIR HEATING

NATIONAL



REGISTERS

and

JONES
NATIONAL



REGISTERS

Give Tone

and

"Dress"

A BOOSTER

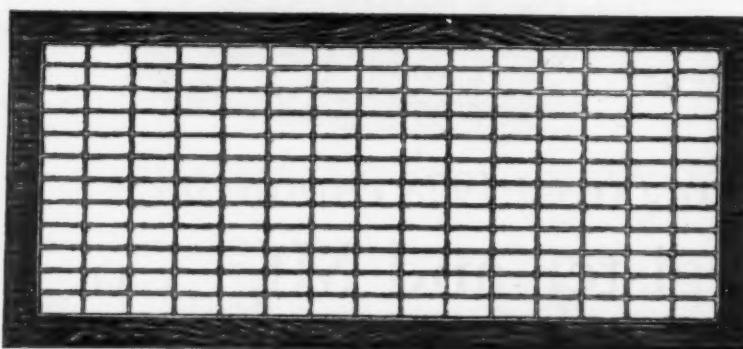
For Every

Heating Plant

THE warm air register is the only visible part of the heating system—Then why try to economize by "falling for" a cheap appearing register—When for *no more* you can have National Registers on every installation to represent you forever and proclaim your judgment and prowess as a real installer of Standard Code Heating Plants.

DON'T FORGET "U. S. SPECIAL STEEL FACES"

Featured in the Latest and Closest Duplication of Real OAK Grain



SO Close a Match to Oak Finished Floors that it would "Fool a Saw"

Get Our Reduced Prices
Effective January 1, 1928

HAVE YOU OUR CATALOG NO. 20?

Did you get a JONES NATIONAL Calculating Scale?

UNITED STATES REGISTER CO.

Main Office, BATTLE CREEK, MICH. Branches:—Minneapolis, Minn., Kansas City, Mo.,
Albany, N. Y., Denver, Colo., Los Angeles, Calif.

When writing mention AMERICAN ARTISAN—Thank you!

Sturtevant FURNACE CLEANER

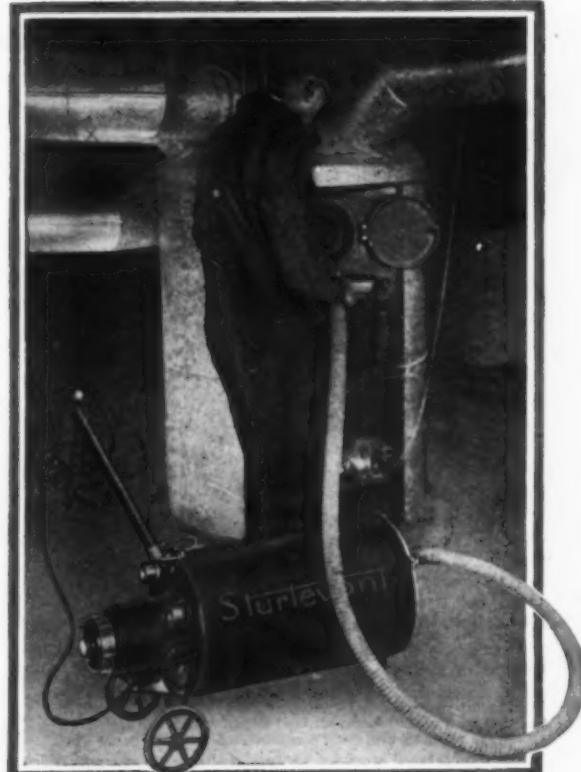
(REG. U. S. PAT. OFF.)

**INCREASES
your Profits
1/2 to 2/3**

HUNDREDS of furnace men are now reaping large profits by cleaning furnaces with the Sturtevant Furnace Vacuum Cleaner. It paves the way for more furnace sales and repair business. Every house owner in your community is a prospect. They all know that a clean heating plant is a coal saver.

Every job will net you a fair profit. A great many furnaces will need repairs and some homes will need new heating plants—all extra profit for you. Offer this Vacuum Cleaning service to your prospects. The profits on the cleaning jobs alone will soon pay for the cleaner.

Don't overlook this opportunity to get more business. Over three hundred furnace men have increased their profits considerably with this machine in the past eight months. The time to investigate the Sturtevant Furnace Vacuum Cleaner is NOW so that you will be prepared to handle a large volume of cleaning and repair business this coming spring.



Sturtevant Furnace Vacuum Cleaner cleaning Warm Air Furnace.



Oil Fired Boilers, Hot Water and Steam Boilers as well as Warm Air Furnaces can be cleaned with the Sturtevant Furnace Vacuum Cleaner.

Send in the coupon NOW →

B. F. Sturtevant Company,
Hyde Park, Boston, Mass.

Without obligation to me, send along further information and price on the Sturtevant Portable Furnace Cleaner.

Name

Address

City..... State.....

A.A.-12-31

1768

35,000 Sheet use these time-and

"UNXLD" DAMPER QUADRANTS (Patented)



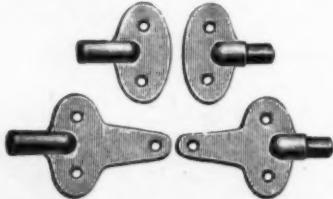
Authorities on heating and ventilation concede this to be the simplest, neatest and most efficient device yet designed for regulating small and medium size dampers in hot and cold air ducts, blow pipes, etc. Its use in the largest and finest buildings throughout the country is proof of this.

It is easily and quickly bolted or riveted to either curved or flat surfaces.

The damper can be set at any angle from "full open" to "tight shut" and held in the desired position merely by tightening the wing nut. The graduated flange at the bottom of the Quadrant indicates the exact position of the damper in the duct.

Made of pressed steel for $\frac{3}{8}$ " and $\frac{1}{2}$ " square rod and of malleable iron for heavy dampers where $\frac{3}{8}$ ", $\frac{3}{4}$ ", or $\frac{5}{8}$ " square rod are needed.

DAMPER BEARINGS



They are used instead of rods on small and medium size dampers. Quicker to attach than a rod and they cost less.

Made in two sizes: $\frac{3}{8}$ " to fit the $\frac{3}{8}$ " "Unxld" Quadrants and $\frac{1}{2}$ " to fit the $\frac{1}{2}$ " "Unxld" Quadrants.

DAMPER ROD CLIPS

Offer a quick and easy method of attaching square rod to dampers. Easy, because the rod is fastened firmly to the damper without drilling and consequent weakening of the rod; and quick, because the drilling operation is eliminated.

Made for $\frac{3}{8}$ ", $\frac{1}{2}$ ", $\frac{5}{8}$ ", $\frac{3}{4}$ " and $\frac{5}{8}$ " square rod.

DAMPER and DEFLECTOR CASTINGS



Damper



Deflector

Both the Damper and Deflectors are made in only one size—to take a $\frac{3}{8}$ " round rod.

This is the most economical way to join sheet metal!



1st. Punch or drill a hole as in Fig. 1; or pierce a hole as in Fig. 2.



2nd. Turn in the Screw with a screw driver.

PARKER-KALON
Hardened Self-Tapping SHEET METAL SCREWS are as necessary in a sheet metal shop as sheet iron and solder. More than 35,000 sheet metal shops use them for such work as joining, heating and ventilating ducts; joining sections of cornices and attaching ornaments to cornices; connecting blow pipes, erecting fans, housings, etc.; attaching metal trim to hollow metal windows and doors; putting up furnace and stove pipe, etc.

Through the use of these Screws they have reduced their cost of doing this work from 50% to 75%.

Made with round heads and flat countersunk heads in six sizes:

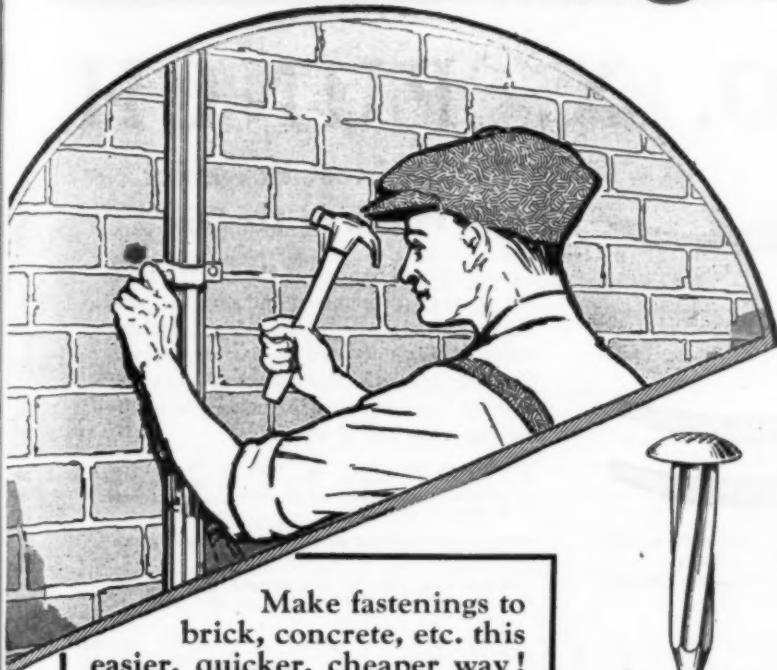
$\frac{3}{8}$ " No. 6	$\frac{3}{4}$ " No. 14
$\frac{1}{2}$ " No. 7	$1\frac{1}{4}$ " No. 10
$\frac{5}{8}$ " No. 10	$1\frac{1}{2}$ " No. 14

PARKER-KALON CORPORATION
190 Varick Street
New York, N. Y.

PARKER-KALON HARDENED SELF-TAPPING Sheet Metal Screws

PATENTED
APR. 1, 1919—No. 1299232 — MAR. 28, 1922—No. 1411184
AUG. 14, 1923—No. 1465148 — FEB. 10, 1925—No. 1526162
OTHERS PENDING

Metal Shops labor-saving devices



Make fastenings to
brick, concrete, etc. this
easier, quicker, cheaper way!

FOR a long time sheet metal workers have needed an easier and quicker means for making fastenings to brick, mortar, concrete, etc. Now they have it in PARKER-KALON Hardened MASONRY NAILS.

These unique Nails are hammered into masonry like ordinary nails are hammered into wood. They are much easier to use than expansion bolts, lead anchors, hooks, spikes, etc.—and they cost less. No wonder that Hardened Masonry Nails have in a short period of time been adopted by thousands of sheet metal workers.

You, too, can save time, labor and money by using these Nails for fastening gutter and leader; attaching cornices, flashings, etc.; hanging ventilating ducts, etc., and for dozens of other jobs.

PARKER-KALON PRODUCTS are sold by more than 500 jobbers of hardware, tinnery and furnacemen's supplies. Buy from your jobber.

Parker-Kalon
Hardened
Masonry Nails

PATENTED FEB. 26, 1924—No. 1485202

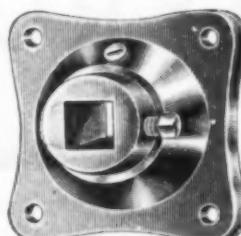


Made in three sizes:
 $\frac{3}{16}'' \times 1''$
 $\frac{1}{4}'' \times 1\frac{1}{2}''$
 and
 $\frac{1}{4}'' \times 2''$

DAMPER BALL BEARING BUSHINGS

Used to assure the easy operation of heavy dampers in smoke breechings and ventilation ducts. Prevents dampers from "binding" because it keeps them in the center of the pipe or duct.

Made for $\frac{1}{2}''$, $\frac{5}{8}''$, $\frac{3}{4}''$
and $\frac{7}{8}''$ square rod.



DAMPER PLATES



Made in two
sizes for $\frac{3}{8}''$ and
 $\frac{1}{2}''$ round rod.

DAMPER LEVERS



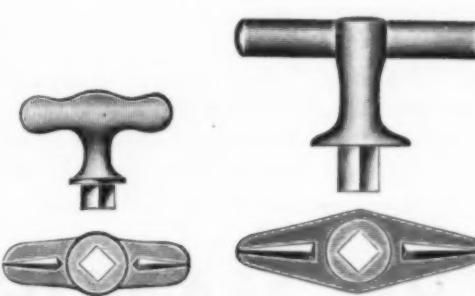
Single



Double

Both the single and double Levers are made
to fit $\frac{1}{2}''$, $\frac{5}{8}''$, $\frac{3}{4}''$ and $\frac{7}{8}''$ square rod.

DOOR HANDLES and DOOR BUCKLES WITH TONGUES



Door buckle with tongue

Door handle with tongue

HYRO
PRODUCTS
Speed Up Production™

Time and Labor

HYRO NO. O. X. PUNCH



Showing the No. O. X. Punch with handle thrown back, ready to have punch removed.



Patented December 9, 1919
No. 1,324,621
June 6, 1922—No. 1,418,474

The Most Powerful Punch of Its Size

Can be carried around in the pocket, making it very convenient for outside jobs. Makes an excellent tool for punching holes in work located in narrow, out-of-the-way places. Punches and dies are quickly changed by throwing back the handle, a matter of seconds.

Measures 8 in. over all. Weighs 2½ pounds. Will punch a 17/64 in. hole in 16-gage steel or equivalent. Holes can be punched in the center of a 3½ in. circle.

Made of drop-forged steel. Simple construction. Perfect balance. Easy action.

Punches and dies in 6 standard sizes 5/32 in., 3/16 in., 7/32 in., 1/4 in. and 17/64 in.

HYRO SHUR-GRIP Solder Iron Handle



Won't Burn

Stays Cool

Will Outlast Six Ordinary Handles

Cuts a thread on the stem of the Solder Iron as it is screwed on.

Goes on like a nut on a bolt. Once on, it stays on. Can't get loose or come off unless unscrewed.

Saves time and labor. Safe and comfortable to use. Eliminates the many faults of the ordinary handle.

A trial will convince you that they are the best.

Screws On and Stays On

Can't Split or Come Off

Standardized by Shops where Economy and Efficiency are Practiced

MADE IN THREE SIZES

No. 7 for stem 5/16" to 1/2" diameter (generally 1½ to 4 lb. solder irons).

No. 8 for stem 7/16" to 9/16" diameter (generally 4 to 8 lb. solder irons).

No. 9 for stem 9/16" to 11/16" diameter (generally 8 to 12 lb. solder irons).

HYRO MANUFACTURING CO., Inc.

Saving Tools

HYRO
PRODUCTS
Speed Up Production

HYRO NO. 18 DUPLEX PUNCH

The No. 18 Duplex Punch was designed to give the trade one truly duplex punch that would accommodate the punching of special and intricate shapes, punch material that heretofore was impossible to be punched by a bench tool, punch flat work and deep pans with equal facility, insert eyelets, rivets, etc., and punch irregular shapes.

The No. 18 Punch will punch any round hole up to $\frac{3}{8}$ " in 14-gauge galvanized, $\frac{5}{8}$ " in 16-gauge, $\frac{7}{8}$ " in 18-gauge and 1-1/16" in 20-gauge. Stock sizes of round punches and dies are furnished in the following sizes: $\frac{1}{8}$ ", $\frac{5}{32}$ ", $\frac{3}{16}$ ", $\frac{13}{64}$ ", $\frac{7}{32}$ ", $\frac{1}{4}$ ", $\frac{9}{32}$ ", $\frac{5}{16}$ ", $\frac{11}{32}$ ", $\frac{3}{8}$ ", $\frac{25}{64}$ ", $\frac{13}{32}$ ", $\frac{7}{16}$ ", $\frac{1}{2}$ ", $\frac{9}{16}$ ", $\frac{11}{16}$ ", $\frac{13}{16}$ ", $\frac{15}{16}$ " and 1-1/16". We also stock a varied assortment of slot punches and dies, rivet inserting dies, etc.



Patented October 20, 1925
No. 1,558,289

Showing the No. 18 Punch in the lower opening in the frame, ready for punching pans and deep work. The arbor or horn can easily and quickly be raised to upper opening, where it can be used for punching flat work, pipes, etc.

HYRO UNIVERSAL *Hollow Bench Mandrel*

A Universal Mandrel for Double Seaming
on Curves and Square Work

Adjustable Heads that can be easily and quickly set to accommodate any form of double seaming and riveting on duct work, and general shop work.

The HYRO UNIVERSAL HOLLOW BENCH MANDREL will make a valuable addition to any sheet metal shop because it gives the sheet metal worker one rigid tool on which he can easily and neatly double seam practically every conceivable shape in duct work.



Patented December 15, 1925
No. 1,506,125

STANDARD HEADS



One end of the HYRO Mandrel can be used in the same manner as the old conventional bench mandrel. The other end accommodates any of our standard heads shown on opposite side of this page. Each head is made with a ribbed stud that can be set at any desired angle and locked securely into place. Changes are easily and quickly made. This unique arrangement allows the sheet metal worker to work practically every conceivable shape used in general sheet metal work. Heads also make very useful dolly bars. The HYRO Mandrel weighs 53 pounds and measures 40 inches over all.

200 Varick Street

New York City



MELLOW

Famous throughout *The*
the country for its Improved
high quality and Heating
known by dealers as Unit

THE MELLOW is built better and designed to get maximum results from your good installations. Notice the lugs reinforcing the top of combustion chamber—this means added strength, greater radiating surface and a solid support for the radiator.

One piece radiator with cleanout even with the bottom of radiator which greatly facilitates the work of cleaning. Ash pit and base ring is one solid piece.

All this and MORE without extra cost

A high quality furnace such as the MELLOW should cost more than the ordinary furnace but it is economically priced enabling you to give your customer more value.

There are many other points about the MELLOW which will interest you—just glance through the MELLOW catalog and see.

Write
for catalog
and prices today

CHICAGO WAREHOUSE - - - 702 W. 120th STREET - - - PULLMAN 1734
PORTLAND, ORE., WAREHOUSE - - - - - 403-09 HOYT STREET

LIBERTY FOUNDRY CO., ST. LOUIS, MISSOURI



Here It Is!

THE NEW PEERLESS BOILER IRON FURNACE

Now is a good time to hook up with the most improved boiler iron heater on the market.

EXCLUSIVE FEATURES—

Automatic Damper Control
Down Draft Combustion
Special Gas Draft on Feed Door

HEAVIER AND MORE DURABLE
THAN EVER

Orders for Sample Furnaces will be accepted and
shipped on approval freight prepaid

Write for Details

The
PEERLESS FOUNDRY CO.

1853 Ludlow Avenue
INDIANAPOLIS, IND.

BOOMER

THIS is our latest addition to the Boomer line. We heartily recommend it for your favorable consideration.

The severe tests we have given this furnace have proven its durability. The unsolicited reports we received from users last winter have been most flattering.

For durability, economy, easy to operate, easy to set up and the low price at which we offer this furnace, you will make no mistake in arranging for the agency.

THE HESS-SNYDER CO.
MASSILLON, OHIO

Makers of BOOMER FURNACES for Forty-Three Years



*The strong back that carries
a big load for many years—*

NOTICE this powerful back—these radiators on the "Home Comfort" are built on curved lines with no square corners. This construction provides immense and perfect radiation—the steel vertical tubes and the fire travel arrangement securing all the heat possible from the fuel consumed.

The Dust Box is one piece solid heavy casting with two clean-outs attached that protrude through the casing—no bolted or cemented joints. Notice the extra wide circuit of the radiators, allowing a free circulation of air around the rear part of the furnace, eliminating what has proven to be one of the weak parts in furnaces of similar construction. This is an exclusive feature of the

"HOME COMFORT" (TRADE MARK REGISTERED)

WE have told you here only one part of the big Home Comfort story. Its entire construction is first quality in design and material. We want you to write now for our catalog which gives complete details.

The agency for the sale of "Home Comfort" Steel Furnaces in your territory is bound to make more business and profits for you.

Your customers will boost the "Home Comfort"—they can't help it—its quality keeps them satisfied a lifetime.

Write today for our new booklet—"The Joy of Home Comfort" and a booklet called "House Heating"

ST. LOUIS HEATING COMPANY
2901-11 Elliot Ave. St. Louis, Missouri.
PITTSBURGH DISTRIBUTOR
Wagener Bros., 3805 East Street



Mention AMERICAN ARTISAN in your reply—Thank you!

Special up-to-date machinery makes MARSH wood faces extra strong

AND this super construction of finest grade lumber makes them the snappiest, cleanest finished wood register on the market.

Marsh Wood Faces are used in the finest homes, *every one* is perfect — no others are shipped, therefore you can rely on them.

Marsh Wood Faces excel in design, too, which makes them harmonize with modern decorations.

Made in all Standard and Special Sizes

Use these rich, attractive wood faces for all purposes, above the door, in the ceiling and baseboard.

Your Jobber sells them or write to us for illustrated catalog showing the complete line—large production means a better price, too.

THE MARSH LUMBER COMPANY
DOVER, OHIO

Write for catalog

MARSH WOOD FACES



Style 40-C
Marsh Wood Face
with OBLONG MESH

You will find this Style 40-C an unbeatable design. Cold Air Wood Faces require special care in manufacturing to enable them to stand up under use—Marsh Wood Faces insure satisfaction on every installation.

W.A.WHITNEY MFG.CO. PORTABLE HAND LEVER METAL PUNCHES

Best by 18 Years' Test

No. 2 Punch
The Market's Leader for Nearly
20 Years



Channel Iron Punch
Companion to No. 2 Punch. All parts
of the two Punches are
Interchangeable



Skylight and
Center Flange
Tank Punch



Over 40,000 Satisfied Users

Now Made in 8 sizes and types.
Others Following

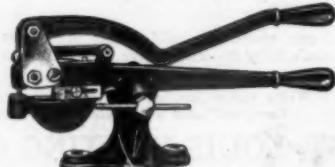
Used Anywhere With or Without Vise. Frequently Pay for Themselves on First Job.

Powerful—Easy Operation. Quickly Changed.

Simple Construction. Few Parts

Ask Your Jobber or Write Us for Circulars,
Testimonials and Prices

Medium-Capacity, Close-Corner
No. 8 Punch



W. A. Whitney Manufacturing Company
715 Park Avenue

ROCKFORD, ILL.

THE SECURITY

Pipe and Pipeless
WARM AIR FURNACE



**WELL BALANCED PROPORTIONS
TWO PIECE RADIATOR**

insuring uniform thickness and efficient heating surface.

**EXTRA LARGE
GROUND JOINT DOORS**

insuring good control of drafts.

**SUPPLIED WITH ROUND GRATE
and UPRIGHT LEVER IF DESIRED**

LOW PRODUCTION COST

Enables us to ship everywhere.

CARLOADS ESPECIALLY DESIRED!

Ask for circular giving ratings and dimensions based on

STANDARD CODE SERVICE

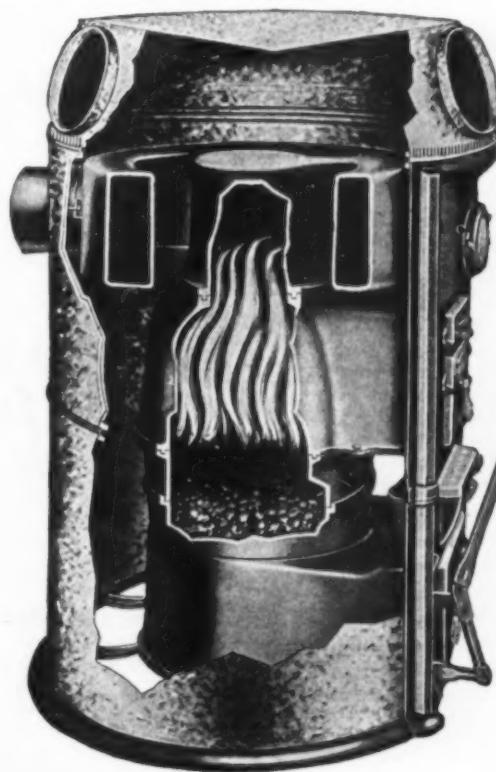
**SECURITY STOVE &
MANUFACTURING CO.**

KANSAS CITY



MISSOURI

When writing mention AMERICAN ARTISAN—Thank you!



**10 OUTSTANDING
Selling Features**

1. One-piece radiator.
2. Large combustion chamber.
3. Double feed doors.
4. Two-piece firepot.
5. Large water pan.
6. Clinker-proof grates.
7. Lever shaker.
8. Deep ashpit.
9. Full cast front.
10. Every "Gem" oversize.

A QUALITY FURNACE

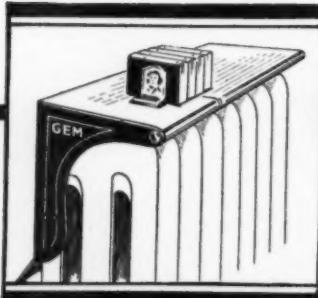
- yet still in the competitive field

The "Gem" is made for the dealer who sells only a few furnaces or hundreds every year. It has all the qualifications of a quality furnace and is sold at a remarkably attractive price.

JOBBERS: We have a few territories open. It will pay you to investigate the Robinson "Gem."

*Write for complete
information*

The Robinson Gem
Robinson Furnace Co.
205 West Lake St., Chicago, Ill.



"GEM" Adjustable RADIATOR SHIELDS

THIS is the season when all the problems that go with running a furnace are uppermost in your customers' minds. The stage is all set for the rapid sale of "GEM" Radiator Shields, to protect home interiors from radiator dust and dirt.

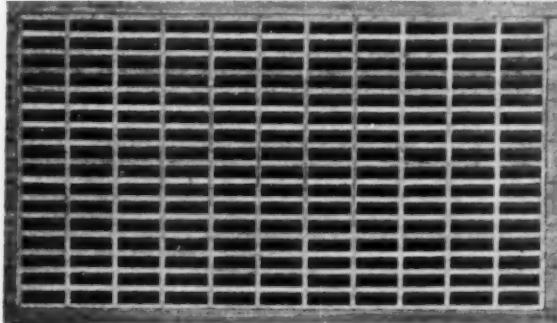
Show a lot of them in your window or up front. Emphasize their ready adjustability to any size of radiator, and the amazingly low prices that this exclusive patented feature make possible. Made in 8 popular sizes to retail from \$4 to \$7.

BUY FROM YOUR JOBBER

1140 BROADWAY, NEW YORK, N.Y.



We make nothing but
WOOD REGISTERS
---and only the best



THEY are accurately made of the highest quality lumber and the finish is the smoothest you ever saw.

McClure Wood Registers unlike many others are not made from leftovers but built especially for high grade installations.

McClure Wood Registers are made in all sizes in any specified wood for all Wood Register purposes.

**—that's why McClure
Wood Registers are better**

*Large stocks for prompt shipments.
Write today for folder and prices.*

McClure Builders Supply Company
East Palestine, Ohio

REX AUXILIARY GAS FURNACES



*Just what
hundreds of
your custom-
ers want—*

REX Auxiliary Gas Furnaces are being sold everywhere fast because they fit a need that makes efficient and economical heating a fact.

The No. 380 REX Auxiliary shown herewith when connected to a coal furnace will heat 5 to 7 rooms without the use of coal furnace.

You can burn both at the same time or either separately.

RIGHT NOW THERE IS A MARKET WAITING IN YOUR TERRITORY FOR REX AUXILIARY GAS FURNACES—THEY BURN EITHER NATURAL OR ARTIFICIAL GAS AND ARE SOLD WITH OR WITHOUT CASING.

REX Auxiliary Gas Furnaces are made in two sizes—the No. 380 illustrated has two 20 inch burners and pilot equipped with Haile adjustable mixers.

The agency for REX Auxiliary Gas Furnaces will bring you big profits—Write for our complete catalog today.

CALKINS & PEARCE

751 E. Long St.,

COLUMBUS, OHIO

Automatic Humidifier



Big Money for Dealers

The popular interest in our Humidifier is shown by the scores of inquiries we have received from all parts of the country. Get in on this Big Profit deal NOW. Write us today for full particulars. The Automatic Humidifier or Air Moistener is the only device on the market today which will uniformly produce UNIFORMLY PERFECT HUMIDITY.

Write for special prices and terms.

WHOLESALE REPRESENTATIVES:

Central Heating Supply Co., 1139 W. 37th St., Chicago
Standard Metal Co., 135 So. Penn., Indianapolis, Ind.
Charles H. Alexander Co., Grand Rapids, Mich.

Automatic Humidifier Company
Cedar Falls, Iowa

Make 1928 a PROFITABLE YEAR for Warm Air Heating

YOU CAN DO IT WITH

THE  LINE

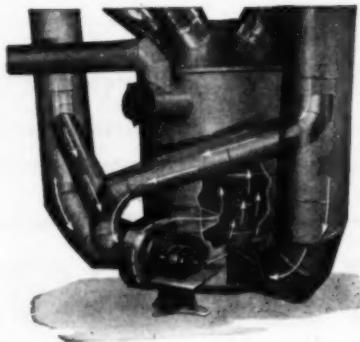
FURNACE FANS AND BOOSTERS

The public is ready for this amazing improvement in warm air heating. People want comfort and economy. They get both when you install HEAT-O FANS AND BOOSTERS.

THE HEAT-O LINE offers you a wonderful opportunity to get out of the competitive class. Every HEAT-O installation is a quality job—with results guaranteed. You take no chances, neither do your customers. It is the greatest profit-maker ever developed for everyone in the furnace industry—manufacturer, jobber and dealer.



Get started with THE HEAT-O LINE in 1928. The sales are so easy because the arguments are so different. You talk results instead of price—sell people on the idea of greater comfort and lower fuel bills—positive circulation throughout the house—instant heat—no waiting—even heat—no stagnant air. Talking points galore with the HEAT-O LINE.



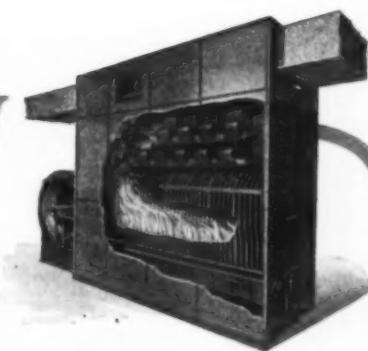
Regardless of the furnace you sell—cast or steel—HEAT-O FANS AND BOOSTERS will boost your business. Today hundreds of dealers are making good. So can you—it's your best bet for 1928. Write for a HEAT-O Catalog. Use it with profit on every furnace job you go after in 1928.

ROBINSON FURNACE CO.

Heating Systems Division
205-7 W. Lake Street

Chicago

**Now
YOU
can
sell
the
NATIONAL SYSTEM
of
FAN BLAST
Warm Air Heating
for
LARGE SCHOOLS, CHURCHES,
FINE RESIDENCES, ETC.**



YOU no longer have to pass up the big jobs or take a chance on not heating it right—we furnish the complete apparatus and the PLANS for ANY LARGE FAN BLAST JOB.

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Our business is heating the Large Churches, Schools, Theatres, and other buildings in the Chicago district with warm air, using the Fan Blast System.

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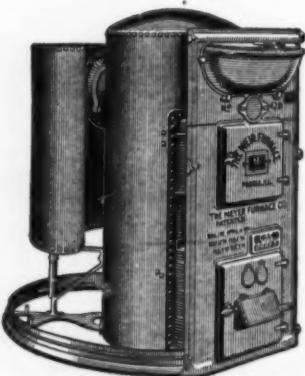
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NO longer is it necessary for them to look to other sources for any part of their furnace or supply needs.

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The Shear Keeps Sharp Even
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THE Shear shown above is the Marshalltown Throatless No. 10. It is operated by hand or power and will take sheets and plates of unlimited width and cuts curves in any direction. Marshalltown Throatless Shears are made in several sizes which cut light sheet metal up to $\frac{1}{2}$ in. gauge. Cutting can be straight, circular or any irregular shape desired.

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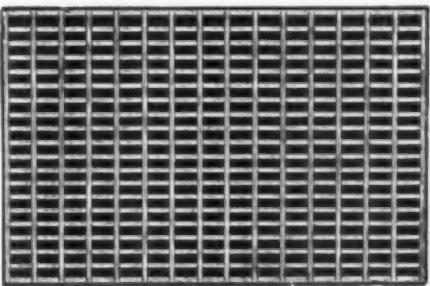


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MARSHALLTOWN, IOWA

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The Purest Iron Made

*Rust . . . Fire! The only difference between rusting and burning is time—both are oxidation. You can see and feel the fire produced by rapid burning. But when metal rusts the process is too slow to be seen. Rust is the ash of this fire.

Published to Promote
Better
Warm Air Heating
and
Sheet Metal Work

American Artisan

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LAST MINUTE NEWS FLASH!!!

As we are getting ready to send these forms to the presses, the telephone tinkled and news came over the wire that the Chicago City Council, then in session, had passed the Standard Furnace Ordinance without a hitch, thus bringing to fruition one of the largest and most difficult pieces of work ever attempted by any warm air heating organization. The credit for this work goes unqualifiedly to the Greater Chicago Warm Air Heating Association. The complete ordinance as it was passed by the City Council will be published in a later issue of AMERICAN ARTISAN, or as soon as the Mayor has definitely put his O. K. on it.

“THARCO”



IF words have meaning, we sincerely hope that “THARCO” stands for all that is good in Furnace Cement.

Nearly twenty years ago, we commenced the manufacture of “THARCO” Asbestos Furnace Cement—a product which met with instant recognition and success among the furnace trade. Today it is used by manufacturers of furnaces, large and small, throughout the country, and is carried on the shelves of the leading Stove Repair and Hardware Jobbers.

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Our business owes its success to two factors—Quality of Material and Service—and upon this basis we solicit your business.

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DETROIT **MICHIGAN**
Manufacturers of
“THARCO” ASBESTOS FURNACE CEMENT

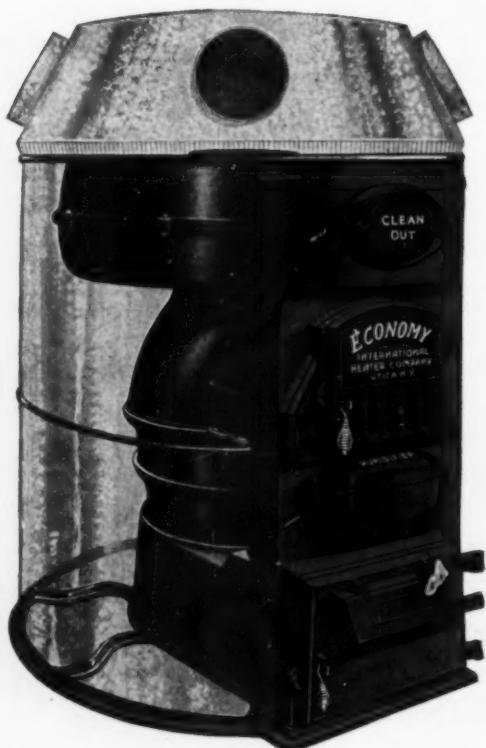
*Look for
the directions on
our cans*

*“In the Interest of
Better Warm Air Heating”*

*Look for our
article in the
February 4th issue*

Built Better — But Priced Lower!

(Waist High Lever Shaker or Triangular Grates)



Improvements in Design

(Pipe or Onepipe Patterns)

The feed neck is very much shorter—the bottom casing ring and ashpit base are cast as a single unit—ashpit door and feed door have been made larger, Fronts, including all parts such as doors, humidifier, hinge lugs, catches, and cleanouts, are uniform on all five sizes.

Radical reduction in price, in addition to greatly improved design, will increase both your sales and your profits.

Features of Merit

Extra large radiators split the air stream so 50% must pass over the combustion chamber, giving maximum protection besides insuring better heat distribution. For example: The radiator on the No. 4422 is 37 $\frac{1}{2}$ " in diameter and 13" deep—larger than ordinarily furnished on 24" firepot.

Combustion chamber is designed for maximum strength possible and to provide ample space to burn the fuel and gases properly. Intense heat will not break it down. Opening into the radiator is full size of area of radiator flue passes—no draft restriction.

One piece bottom enables you to quickly level and mount furnace. Recessed pan-shaped ashpit makes it

practical to wet down ashes without leakage of water.

Triangular bar grates, heavily constructed and easily operated are regular equipment. Waist high shaker with flat bar grate, designed to burn any size coal including buckwheat or lignite, will be furnished when desired.

Hinge and catch lugs bolted to the front and held securely by lock washers. Fronts, including all parts such as doors, humidifiers, hinge lugs, catches, and cleanouts are uniform and interchangeable on all sizes of Economy Furnaces.

Casings equipped with draw bands so casing can be slipped on easily and drawn up absolutely tight.

Service counts during the busy season. We will ship promptly from Utica factory and branch warehouses as listed below warm air equipment of the proper size and type for any requirement.



Cold drop handles made of heavy nickel plated wire are fitted to feed and ashpit doors.

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Say you saw it in AMERICAN ARTISAN—Thank you!



American Artisan and Hardware Record



Vol. 94

CHICAGO, DECEMBER 31, 1927

No. 27



Warm Air Heating and Sheet Metal Display of William F. Wahler, 3715 Elston Avenue, Chicago, Showing How Mr. Wahler Has Tied His Business Up with the Christmas Holidays. The Sales Room Is Immediately in the Rear of the Window. Note Association Symbol to the Extreme Right. Would Any Woman or Man Hesitate to Enter This Sales Room Seeking Information About Warm Air Heating?

Build Success by Using MODERN MERCHANDISING METHODS

*Adequate Attractive Window Displays and Sales Rooms
A PRIME NECESSITY to Business Development*

By GEORGE J. DUERR

BETTER merchandising methods is the war cry and watch word heard throughout the warm air heating industry at the present time, and rightly so. If there is any one phase of the warm air heating industry that needs the attention of the best skill the industry can afford, it is certainly retail merchandising. Here perhaps more than in any

other department of the business, the installer appears to be utterly indifferent or incapable of meeting the needs of the situation.

Secret of No Business Easy to Unravel in Most Cases

One thing that all can be sure of is this: no self-respecting man or woman feels it incumbent upon him or her to enter a dirty, foul-smell-

ing, ill-kept, disorderly shop for the purpose of making a purchase. And there is perhaps more business driven away from the warm air heating industry by prospective customers being unwilling to enter an ill-kept shop than by the lack of faith on the part of the customer in the warm air heating system itself. Therefore, in order to remove one

of the greatest obstacles to the development of the sales end of the warm air heating industry, the warm air furnace installers have got to replace their present "dug-outs," "holes in walls" and "back alley" shops with respectable looking sales rooms and windows that lend the appearance of modernity, trustworthiness and serviceability.

Installer Could Take a Lesson from Other Retailers

The thing I am trying to get at is very well exemplified in the case of the bank. Why do you suppose that banks are always housed in very imposing-looking edifices? Their architecture is almost universally of a nature that will create the impression of strength. The great columns are not put before the entrances to these buildings because of the mere whim of an architect, but rather because of the good effect it will have upon the people who are expected to become depositors of that bank. It lends an assurance that the affairs of the bank are built upon the foundation of strength and durability. In other words, the bank depends upon the atmosphere with which it has surrounded itself to bring in business.

Clothing houses are no different in this respect. The stores on Michigan Avenue, Chicago, are making their appeal to folk who demand quality above everything else, not excluding price. Consequently the atmosphere which surrounds these Michigan Avenue clothing emporiums is of a nature to appeal to the folk who are seeking quality in their merchandise. It is absolutely necessary that these stores do this, in order to attract the clientele they wish. In two stores in the same neighborhood having exactly the same line of merchandise, the one employing scientific sales methods and the other not, the former would be the one to prosper, because people hesitate to spend their money in the sales room that is not attractively fitted out.

How much chance would a clothing emporium or a bank on Michigan Avenue, Chicago, have of making a success if they were to hold

forth in places of business akin to those maintained by some of the warm air heating shops I have been in? Ask yourself, how much money would you be willing to deposit in a bank whose appearance did not give you the feeling of assurance in its stability? Exactly the same thing is true of the man or woman who is interested in buying a heating system. No man or woman will consider any warm air furnace installer more than a tinker and, therefore, an unreliable "cuss" who is unwilling to take the pains to so outfit and arrange his place of business as to give them reason for thinking that he is a reliable business man who knows his "stuff" and is capable of giving them what they came for. It is a reflection on a man's character not to want to merchandise his goods in the best possible manner. He cannot build faith that way.

Many Stores Have Done It With Only Small Outlay of Money

It is not an impossible undertaking to make a warm air heating sales room look just as attractive as any of the first-class business houses on Main street. A few hours' thought and a little money properly invested will do the trick.

The accompanying illustration is the warm air heating and sheet metal display of William F. Wahler, 3715 Elston Avenue, Chicago. This arrangement is perhaps one of the best warm air heating display windows anywhere around this part of the country. The lighting system is perfect, and the entire window shows that it is not impossible to keep abreast of the season even in the warm air heating industry. The picture was taken just before Christmas of this year. A little over a year ago Mr. Wahler remodeled his entire store, with the idea in mind to create a display window and sales room that would adequately take care of his needs in this respect. How well he succeeded insofar as the window is concerned can be seen from the accompanying illustration. The sales room is on a par with the window. The sales room is equipped with a complete

furnace installation that is used for demonstrating purposes, and the results have more than justified the expenditure necessary, according to Mr. Wahler.

The John Reif Sheet Metal Works, 2049 Belmont Avenue, Chicago, is another progressive company that has found the investment of a display room justifiable. In this sales room a complete furnace installation is set up and equipped with a fan, ozonator, draft regulator and thermostats.

Another instance where the investment in a modern sales room and display window is the Kefferly Sheet Metal Works, 4320 Armitage Avenue, Chicago. The remodelling of this store has only been completed about nine months, but J. Kefferly, the proprietor, has found it a big business builder. There are many others, both in and outside of Chicago, and the time is coming very shortly when all those furnace men who have refused to see the light of day on this adequate window display and sales room proposition are going to find it pretty hard pickin's for business.

Good Sales Room an Absolute Essential in Business

A great deal is heard about this and that installer being a perfect Standard Code adherent, but it is equally as important that this installer should apply some of his zeal toward bringing his sales room and window up to the same high standard he maintains with regard to his installations, assuming that they are all 100 per cent Standard Code jobs.

The plea that should not go unheeded is, comply with the provisions of the Standard Code with regard to the installations you make, but by all means do not hide your light under a bushel. Put your business on a sound basis by adopting sales methods that have proved their efficacy to produce business in every type of industry that have been tried; namely, the adequate and attractive display window and sales room, with sufficient explanatory information in the window to attract attention.

HERE'S HOW!! They Get Those Standard Code Factors—12, 60 and 800

Mystery Surrounding Determination of Multipliers 9, 6, and 5 Removed

By PROFESSOR J. D. HOFFMAN*

THE Standard Furnace Code may now be considered one of the fundamentals of warm air heating practice. The fourth edition represents the best thought and practice known at this time, and it is the hope of the committee that the use of the Code will become quite general.

One feature of the Code may not be thoroughly understood; namely, the derivation of the values 12, 60 and 800 in Article 3, Sections 1, 2 and 3. This explanation is made to clear up any mystery in the case and to show that these values are actually obtained by theoretical analysis. Most heat loss calculations for rooms take into account three factors: glass, wall and cubic volume. The values 12, 60 and 800 refer respectively to these terms.

Wall Constants

Most of the residences of the country are framed-wall type, built up of lath and plaster on the inside of the studs and $\frac{1}{8}$ -inch sheathing, building paper and lap siding or drop siding finish on the outside. This wall, if well constructed, may be considered, for the present, as the standard framed wall of the country.

The best values yet obtainable for the heat losses through such a wall is .23 B.t.u. per hour per square foot of exposed surface for each degree difference between the room temperature and the outside temperature. For zero weather this difference is 70 degrees. The heat loss on a zero day, therefore, for each square foot of surface equals

$$70 \times .23 = 16.1 \text{ B.t.u. per hour.}$$

Leaving this value for the present and turning our attention to the results obtained at the Research Laboratory, University of Illinois, we find that one square inch of warm air (leader) pipe area at the furnace bonnet will pass 111 B.t.u. per hour to the first floor, 167 B.t.u.

used instead of 1,000 just as satisfactorily, providing the constants were calculated accordingly.

All the constants in Table A have been calculated by the method given above, using 1,000 as the base value and substituting the proper heat losses for the value .23.

Glass Constants

The relative heat losses between one square foot of ordinary wall construction and one square foot of a single pane of glass exposed to the same conditions is about .23 to 1.15, or as 1 to 5. If the wall constant, therefore, is 60, the glass constant is $60 \div 5 = 12$. Check this with the constants in the brackets, Sections 1, 2 and 3.

Cubic Contents

The specific heat of air changes slightly under changes of temperature, but ordinarily one cubic foot of air changing temperatures through one degree F. gives off $1/55$ B.t.u.

Air lost from the room to the outside air on a zero day drops 70 degrees and each cubic foot carries away with it $70 \div 55 = 1.27$ B.t.u. To carry 1,000 B.t.u. it will require $1,000 \div 1.27 = 800$ cubic feet, approximately. Check this with the constants in the brackets, Sections 1, 2 and 3.

This 34th Warm Air Furnace Annual of AMERICAN ARTISAN contains, you will agree, a great many facts about the warm air heating industry and information that is designed to help warm air furnace installers to become better installers, better salesmen, and better all around business men. Therefore if you find some article herein that is not entirely clear to you, please write a letter explaining your difficulty to the Editor. He will endeavor to set you right.



Professor J. D. Hoffman
Purdue University

per hour to the second floor, and 200 B.t.u. per hour to the third floor.

Assume now a heat loss from the room of 1,000 B.t.u. per hour.

To dissipate this amount of heat it will require $1,000 \div 16.1 = 60$ square feet of exposed wall surface. Check these with Item No. 1, Table A, and the bracket values, Sections 1, 2 and 3. To supply this amount of heat (1,000 B.t.u.) to the room will require a leader of $1,000 \div 111 = 9$ square inches, for the first floor; $1,000 \div 167 = 6$ square inches, for the second floor; and $1,000 \div 200 = 5$ square inches, for the third floor. Check these with the constants outside the brackets in Sections 1, 2 and 3.

Any other heat loss, say, 2,000, 5,000, 10,000, etc., could have been

*In this article, written especially for AMERICAN ARTISAN Warm Air Furnace Annual. Professor J. D. Hoffman, Department of Practical Mechanics, Purdue University, LaFayette, Indiana, Chairman of the Standard Code Committee of the National Warm Air Heating and Ventilating Association, has given a very comprehensive review of how the various factors in the Standard Code are derived.

Warm Air System DISPLACES Steam, EFFECTING Economies in Bed Spring Paint Drying Plant

Loss of Time MATERIALLY REDUCED in Heating Ovens Where Bed Frames Are Dried After Dipping

THE warm air furnace has not only proved its usefulness in producing, to a high degree, comfort in the dwelling, in the church, in the school, but the industrial plant, too, has come to experience its serviceability, its power to effect economies that were found impossible with the old steam plant. A notable example of the service the warm air furnace is rendering industry is had in the paint-drying plant of the Haggard & Marcusson Company, 1107-17 West 37th Street, Chicago, manufacturers of

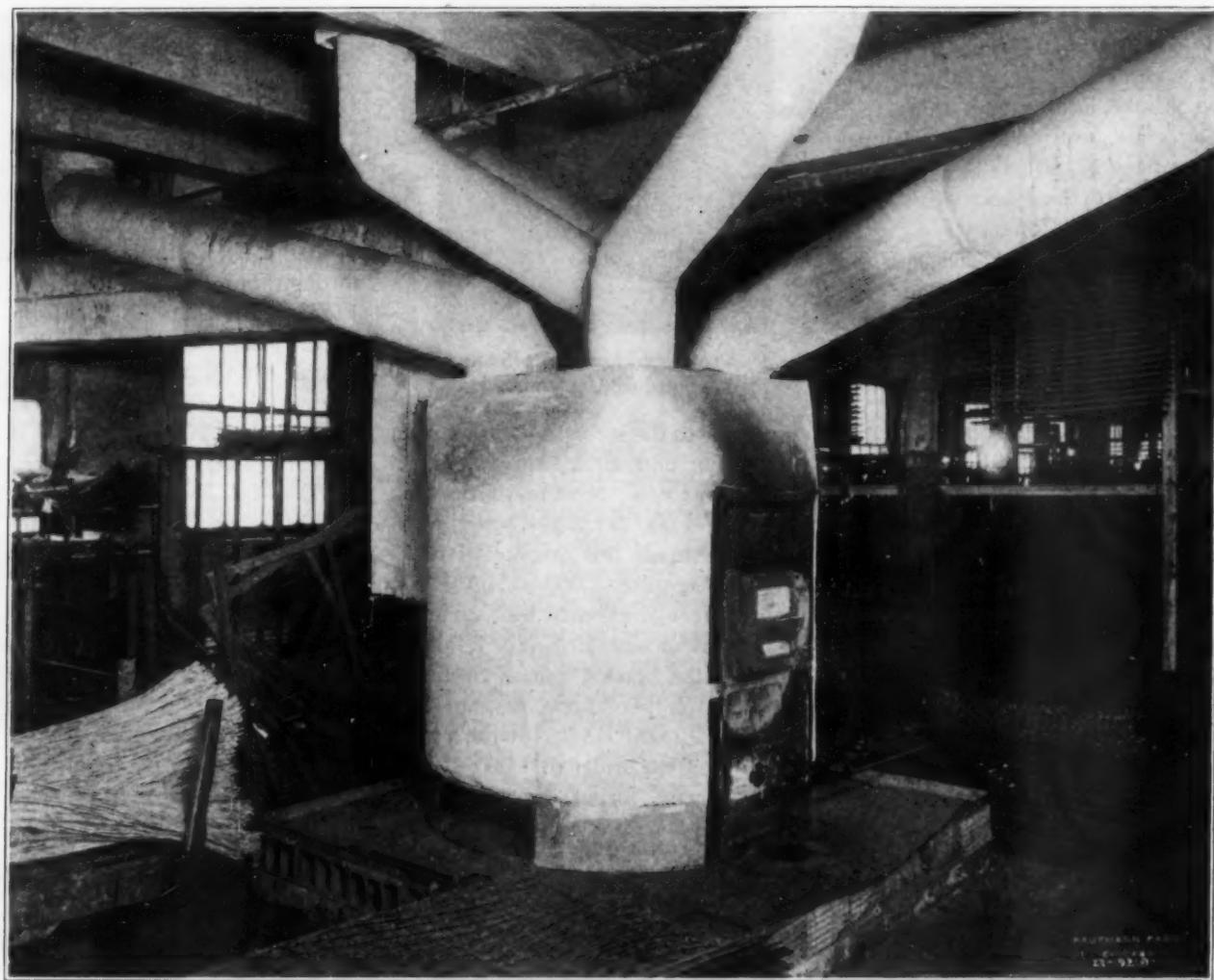
metal beds and springs, where a warm air system has recently displaced and proved its superiority over the old steam plant.

Warm Air System Cuts Drying Time In Paint Plant to Few Hours

"Industry today," said W. B. Anderson, Superintendent of the Haggard & Marcusson Company, "is a very complex thing. The margin between cost of production and marketing and the sale price is constantly becoming narrower as competition grows keener."

"Therefore, the manufacturer is forced to watch closely his costs of production. Each link of his producing chain must be made to function at the highest possible efficiency. To this end his engineers are constantly conjured to remove more and more of the human weakness element in production, in order that the per unit cost will remain more constant and at the lowest possible figure."

The Haggard & Marcusson Company recently found the employment of a warm air system to effect a



Warm Air Furnace Installed to Machine Shop of Haggard & Marcusson, Chicago, and Used to Heat Paint Drying Ovens on the Second Floor. Temperatures of 200 Degrees Maintained, and Drying Time Cut Materially

material saving in this way: One of the processes through which these beds go is that of dipping. The frames are suspended entirely submerged in a great container of paint for a moment or two, after which they are taken out and allowed to drip as dry as they will.

Before they are ready for shipment, however, their paint must have thoroughly dried, so that when they are wrapped with paper for packing the paper will not stick to the paint. This drying process, of course, requires a great deal of not heat alone, but fresh heated air in motion with full oxygen content, which is not possible with the steam system.

Therefore, when Ted Taylor, the designer of the warm air system that is now installed, called upon Mr. Andrews and presented his plan for the junking of the steam coils in the drying ovens, proposing to replace them with register faces, he found Mr. Andrews an exceedingly attentive listener. And quite naturally so, because the problem of getting those drying ovens heated to 200 degrees F. before 9:00 a. m. when the men commence work at 7:00 a. m. was one that had puzzled him for a long time; in fact, he had previous to the arrival of Mr. Taylor almost concluded that nothing could be done about it.

Superintendent Anderson Willing to Gamble on Trial of Warm Air

Let it be known also that it required no small amount of courage to remove all traces of the steam system before the warm air system could even be tried out. But Superintendent Andrews was willing to make the trial, and the results have certainly justified his faith in his own judgment of the feasibility of the plan as it was presented to him.

The new system has been in operation for a sufficiently long time to have it show what it can do, and Superintendent Andrews stated the results were satisfactory in every way. Twenty minutes after the furnace is turned on the ovens above have 200 degrees of heat in them. Whereas, with the steam system for-

merly used, all of two hours were consumed in getting the ovens hot, but never were they able to get the correct amount of heat in the ovens.

In the actual drying process, too, much time has been saved. With the old steam system it required two days after the dipped material was placed in the ovens to bring them to a point where they were dry enough to be wrapped.

Whereas, with the warm air system a few hours after the beds have been put into the driers they are ready for wrapping and packing for shipment. So that two important economies are effected. First, the time required to heat the ovens in the morning was cut from two hours to twenty minutes. Secondly, the drying and shipping time was cut from two days to a little over two hours.

One can easily imagine what such economies mean in large scale production, with labor demanding the wages it does.

It is only natural for the reader to want to know something about the construction of this seemingly phenomenal system. There is nothing extraordinary about the heating plant at all. It is merely the idea which one furnace man had, representing a part of his program of going out after business in a systematic, scientific manner. He analyzed the conditions as they existed, saw where the trouble lay with the old steam system—non-movement of fresh air in and out of the ovens—and made up his mind that a warm air heating system properly arranged would do the trick.

Mechanical Details of Pres- ent Warm Air Installation Very Interesting

The system as it exists today, functioning fourteen hours a day, consists of a high-pressure oil-burning warm air furnace with a 34-inch drum and a 64-inch casing. This furnace is installed on the first floor of the machine shop, directly beneath the drying ovens on the 2nd floor and is a Thomas & Armstrong.

It has two 14-inch round ducts, and three 12-inch round ducts. In

addition there are two 14-inch ducts which carry the warm air away from the smoke flue, heating one of the ovens.

The smoke flue is a 9-inch pipe, and it is surrounded with a 24x24-inch duct. The two 14-inch ducts mentioned as taking the air away from the smoke flue are connected to this 24x24-inch covering duct. Sufficient warm air from the smoke flue is utilized in this manner to heat one of the drying ovens above without difficulty.

The entire furnace casing and hood are covered with magnesia lagging. The warm air ducts and the duct surrounding the smoke flue are covered with asbestos air cell paper.

Five Ovens Heated to 200 Degrees and More

There are five ovens, each 6x8x24 feet, that are heated to 200 degrees with this one furnace. There is no fan or blower of any kind on the system, and the air is taken from the machine shop in which the furnace stands by raising the casing about six inches from the floor and permitting the air to enter.

The warm air registers are of the wall type. "The secret of the phenomenal success of this system," said Ted Taylor, "is that the drying rooms are vented to the roof of the factory. The stack openings in the ovens are all near the floor. The stacks run up the side of the wall and out through the roof. At the top of each stack there is placed a rotating ventilator which sucks the air out of the oven. This drawing the air out continuously is what causes the circulation, so that the ovens are supplied at all times with fresh air heated to 200 degrees or more, which causes quick drying and saves time."

On the other hand, the old steam system merely kept the same air hot. There was no chance for air with the necessary oxygen content to get into the oven, consequently the drying process was greatly retarded, as was shown when compared to what it is now.

Proper Presentation of Facts MAKES Selling Heating SERVICE to Churches EASY

Competition Makes Exit When Customer Is Convinced Through Studied Sales Effort

By EULAN I. KURR*

SO much has been said in the past issues of AMERICAN ARTISAN and other trade papers, by the University of Illinois through the medium of the National Warm Air

Heating and Ventilating Association, by the manufacturers and by the dealers and installers on the subject of superiority and advisability of warm air heating over

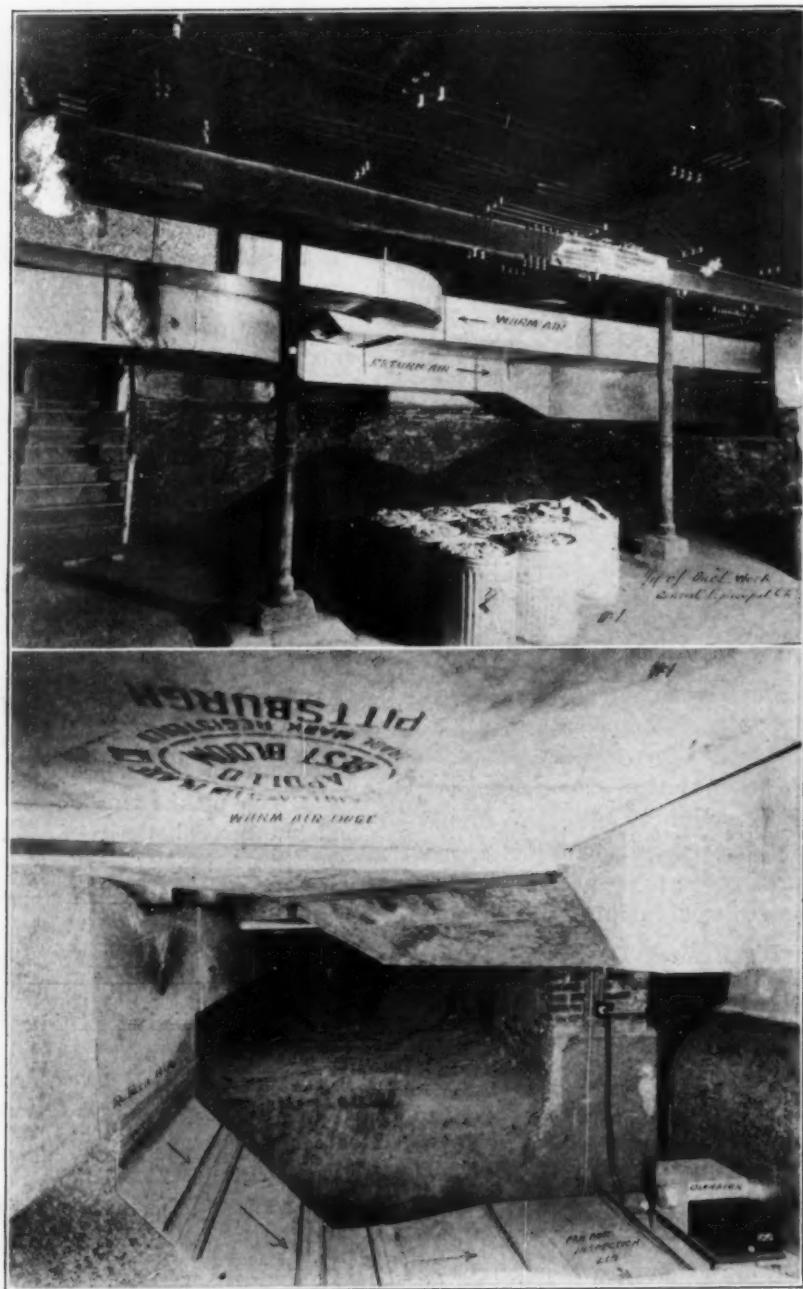
steam and hot water heating, that I will not attempt to dwell on the subject of health, cleanliness and efficiency of warm air, but will enumerate the methods of selling and installing quality jobs in large buildings.

In order to be able to sell large warm air heating contracts, one must first be sold on the proposition himself; he must be posted on the latest method of installations and must be able to lay out a job and supervise the installation. With the information available today to every dealer and salesman connected with the warm air industry, there is positively no excuse for not knowing the essentials of good warm air heating and not having the ability to put it across.

Still Too Many Men Who Know Nothing About Standard Code

It is a deplorable fact, nevertheless it is true that this country of ours is still flooded with men in the sheet metal business who probably have never heard of such a thing as the Standard Code and who still sell and assemble hot air furnaces, and a large percentage of them still insist on terming them cellar heaters, which is no misnomer, for that is exactly what they are and nothing else but, in the truest sense of the word.

These men would better confine their efforts to tin roofing, and let the heating job to the man who has outgrown the words hot air and



No. 1—Showing Warm Air and Return Air Trunk Lines in Basement of Christ Episcopal Church, Reading, Pa. (Below) Closeup of Return Air Duct, Fan Inspection Box and Ozonator in Christ Episcopal Church

*Article on tactics to employ when selling warm air heating systems to churches, schools and other large public buildings where salesman must convince several members of a heating committee, written exclusively for AMERICAN ARTISAN 34th Warm Air Furnace Annual by Eulan I. Kurr, heating engineer for Frantz & Luppold, furnace installers and general sheet metal contractors at Reading, Pennsylvania.

cellar heater. As long as the manufacturer caters to this type of dealer, just that much longer will the legitimate dealer be handicapped in educating the public that he has something to offer that is really different and worth while.

These barriers are, however, gradually being broken down and the obstacles of ignorance overcome more and more each year as the dealer and salesman become sold themselves, and having been sold on good warm air heating, have the conviction and the "guts" intelligently to spread the gospel of better heating.

**Live in the Present and
Act Your Age
Installers!**

There is no more excuse for a man to follow the old methods of selling hot air today than there is for him to wear side whiskers or vote the straight party ticket, simply because his dad has done this before him.

Some recent installations the writer has seen are as old-fashioned and as far out of date as a 20th Century flapper would be with hoop skirt and pantalets.

We live in the present; let's not work in the past. One of the above mentioned old-timers recently asked the writer, in all seriousness, how in — he had the "guts" to try to sell a large church a warm air heating job for approximately \$5,000.00 and expect to get away with it.

Well this old foggy has since learned to his astonishment that it wasn't nerve required to sell the job and he also learned that the job actually works like a clock and that every one of the 1,600 members of the church are tickled pink with its performance. He has also learned that the dealer has the full purchase price safely tucked behind the iron gate of the big bank.

**Competition with Keen
Minds Gives Real Thrill
to Engineer**

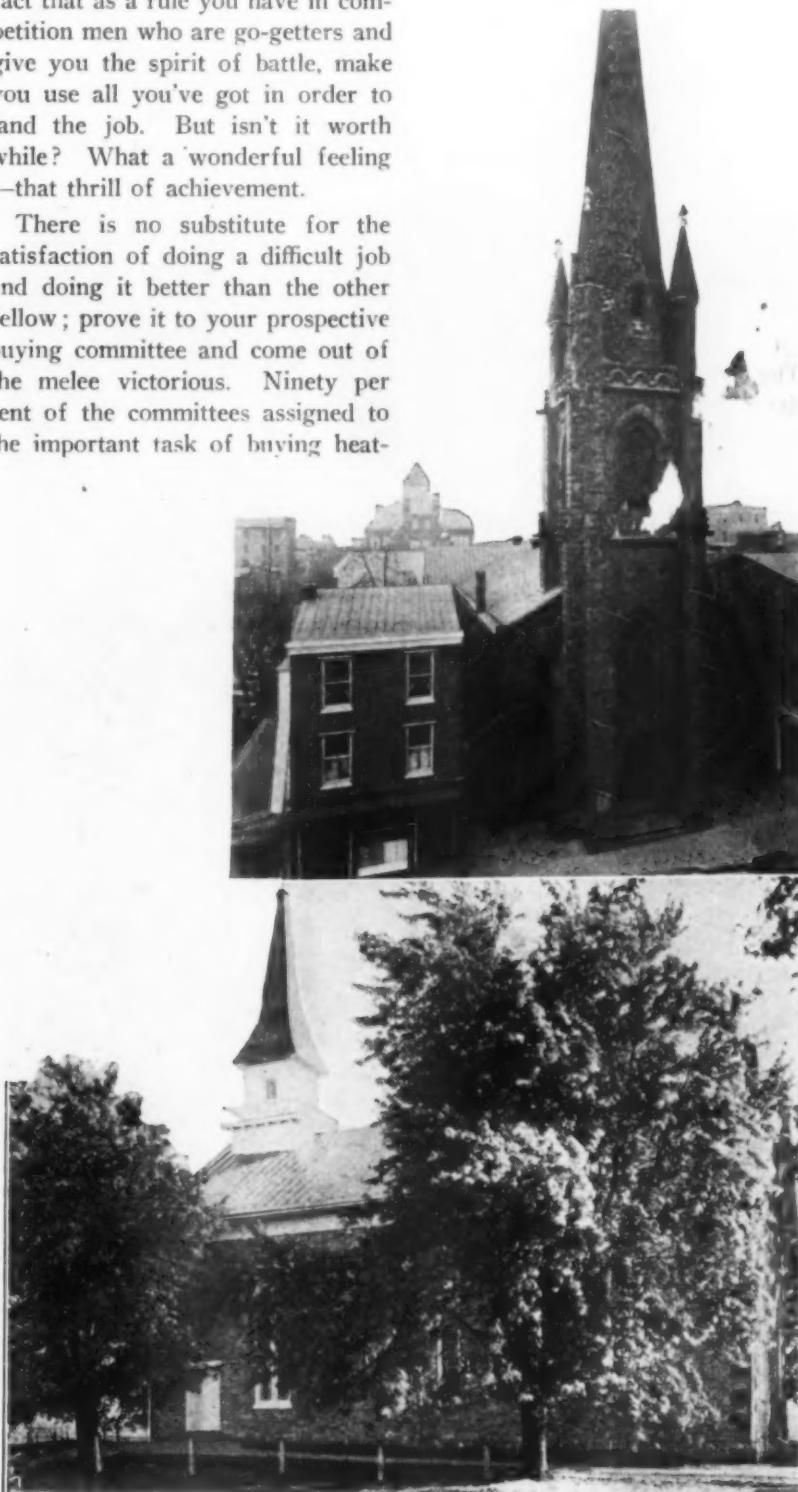
It is mighty hard to teach an old dog new tricks, and my advice would be, don't try. Just show them it can be done, and if they are not too hard-headed, they will wake

up sooner or later. Be prepared; know your stuff, and nine times out of ten you make a sale.

There is a certain fascination about selling a large job, such as a church, which one does not feel when selling an ordinary home installation. Probably it is due to the fact that as a rule you have in competition men who are go-getters and give you the spirit of battle, make you use all you've got in order to land the job. But isn't it worth while? What a wonderful feeling — that thrill of achievement.

There is no substitute for the satisfaction of doing a difficult job and doing it better than the other fellow; prove it to your prospective buying committee and come out of the melee victorious. Ninety per cent of the committees assigned to the important task of buying heat-

ing equipment for their church are intelligent enough to know a real thing when they see it and are not afraid to pay its worth. Therefore, it is essential for the salesman to be more than just a salesman; he must be a sales engineer, must know his stuff from A to Z and



(Above) Christ Episcopal Church, Reading, Pa. Note Extensive Use of Sheet Metal for Roofing Purposes. (Below) St. John's Union Church, Host, Pa. Also Heated with Warm Air. Note Metal Roof on This Building Also

backwards, so there remain no questions unanswered.

The photographs of the churches in connection with this article are numbered 1-2-3, in order of their sale. The Christ Episcopal Church Number 1 Committee was composed of an editor, a banker, a merchant and a broker. The broker is also the president of the Reading City Steam Heating Company (please note this).

These men knew that we had something to offer in a recirculating, reconditioning system with forced air that no one else could touch with steam or hot water, regardless of price.

The investment of \$3,600.00, the cost of

this installation, has been an asset to the church the past winter in saving 40 per cent of their coal bill, as well as giving the pleasure of worshiping in a comfortable and healthy atmosphere, the first time since the church was built over a century ago. This is a battery of two 30-inch furnaces with two Miles fans and two electrical ozonators and two Haynes automatic humidifiers.

Number 2, the St. John's Church at Host, Pennsylvania, was an easy sale as the result of the recommendations from the Christ Church committee. They knew that what we have done for Christ Church we could do for them if they would give us a chance.

Well, they gave us the

chance; we embraced it, made good and received another friend and booster. Although our closest competitor wanted to heat this church for \$1,300.00, the committee, composed of farmers, realized it couldn't be done for that price when we wanted \$2,700.00.

Customer Becomes Skeptical When Price Is Too Low

They chose not to consider the cheap John and cast their lot with us. It is humanly impossible to take a photograph of the installation, due to the fact that we had just enough room in a hole in the extreme part of the excavation to place a battery of two furnaces.

The ducts to the front and vestibule at the north end of the church were installed in a space of 2 feet between the joists and the floor. These ducts are approximately 80 feet long, each, and work perfectly on gravity. There is no electricity available, and to play safe, we excavated the furnace room to a 12-foot depth in order to get sufficient pitch on the long ducts.

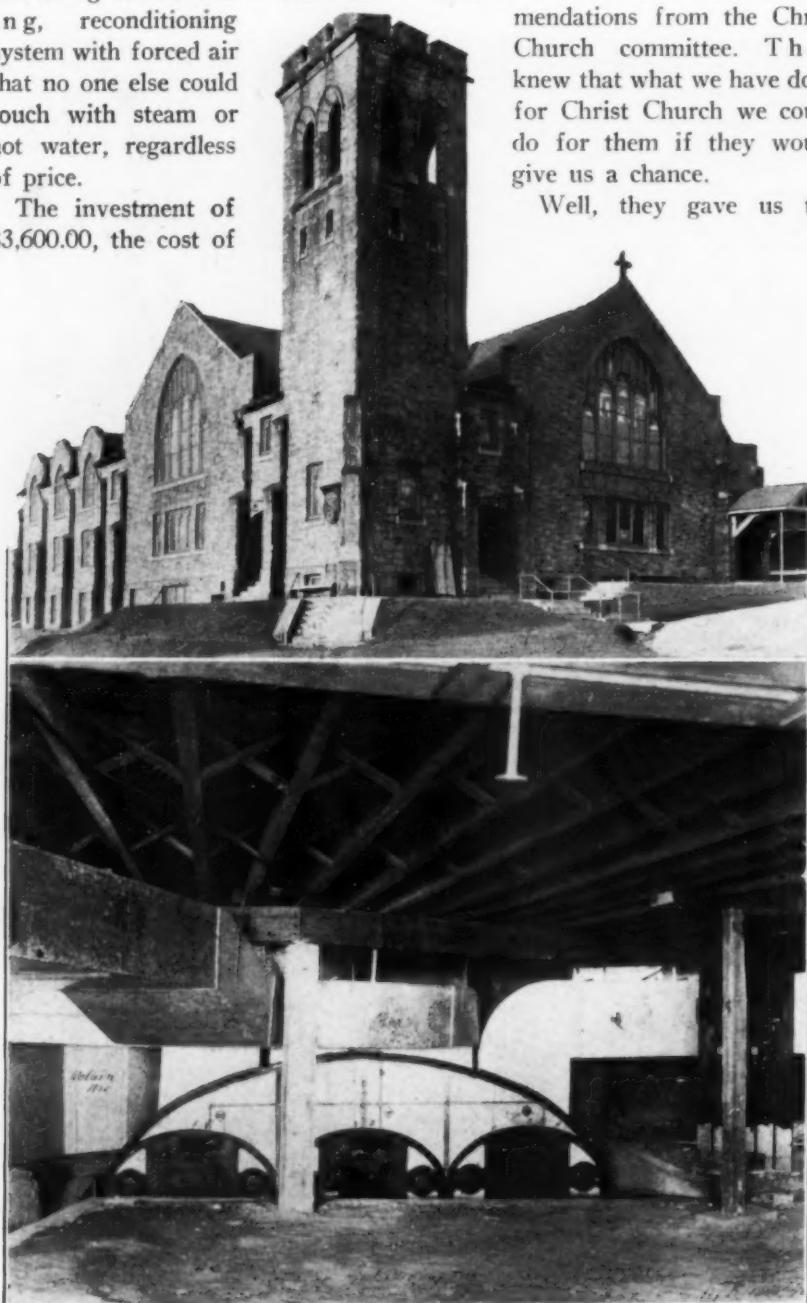
Had it not been for taking this precaution we would today probably have a different story to tell and would not have the opportunity to reproduce through the medium of this paper the church's recommendation, undersigned by Mr. Troutman, one of the committee.

It Was a Case of Highest Bidder Take the Job

Photograph Number 3 represents the largest heating job that has ever been made with warm air, exclusively in this section of the country. It is the Alsace Lutheran Church at Hyde Park, Pennsylvania. The job, as the photos show, consists of three 30-inch furnaces under one hood, equipped with three Miles automatic fans and two large electrozal ozonators.

On this job it was necessary to excavate a sub-cellars to the depth of four feet in order to get under the main beam, which was only six feet from the basement floor. This job is also equipped with three Haynes automatic humidifiers.

On this job we were in competi-



No. 3—(Above) Exterior View of Alsace Lutheran Church, Hyde Park, Pa., Heated with Warm Air System. (Below) Basement of Alsace Lutheran Church Showing Battery of Three Furnaces Which Supply Heat to Mammoth Trunk Lines

tion with three contractors who were going to heat the church for \$1,700.00, \$2,250.00, \$4,300.00, respectively. Our price was \$4,800.00. The success of this job can best be judged by the words of the pastor: "If you have any doubting Thomases, send them to me."

In closing, let us repeat: There is no substitute for the satisfaction of doing a difficult job and doing it better than the other fellow. Reap your reward in honest profit and sincere service. Present the facts intelligently, honestly, and the sale is easy to make.

Testimonial Letter Gives Mute Evidence of Satisfaction

A testimonial letter received from Augustus W. Hoff, member of the heating committee, Christ Episcopal Church, Reading, Pennsylvania, as to the satisfactory functioning of the heating system installed by Frantz and Luppold, is enlightening. The letter follows, the original of which, written to the attention of E. I. Kurr, is in the office of the installers:

"Dear Sirs:

"Referring to our conversation regarding the forced air heating and reconditioning system which you installed in Christ Cathedral last fall, I am indeed glad to tell about our most gratifying services received from this system the past winter.

"For the benefit of those who are not familiar with the construction of our church, I will mention a few of the dimensions and conditions so they can visualize the immense task required of this heating system: The main auditorium is 130 feet long by 50 feet wide, with a ceiling height of 40 feet. There are some twenty large windows, a dozen of them being 6x14 art glass on the two sides and on the rear end. We have a large double door and two large single doors leading into the entrance of the auditorium, and the double door is kept open in the coldest of weather until the services are started.

"It is surprising how this cold outside air is immediately sucked into the return air faces and reconditioned, ozonated and moistened

before it is recirculated to the church, maintaining a temperature of 70 degrees throughout the entire day in the coldest of weather.

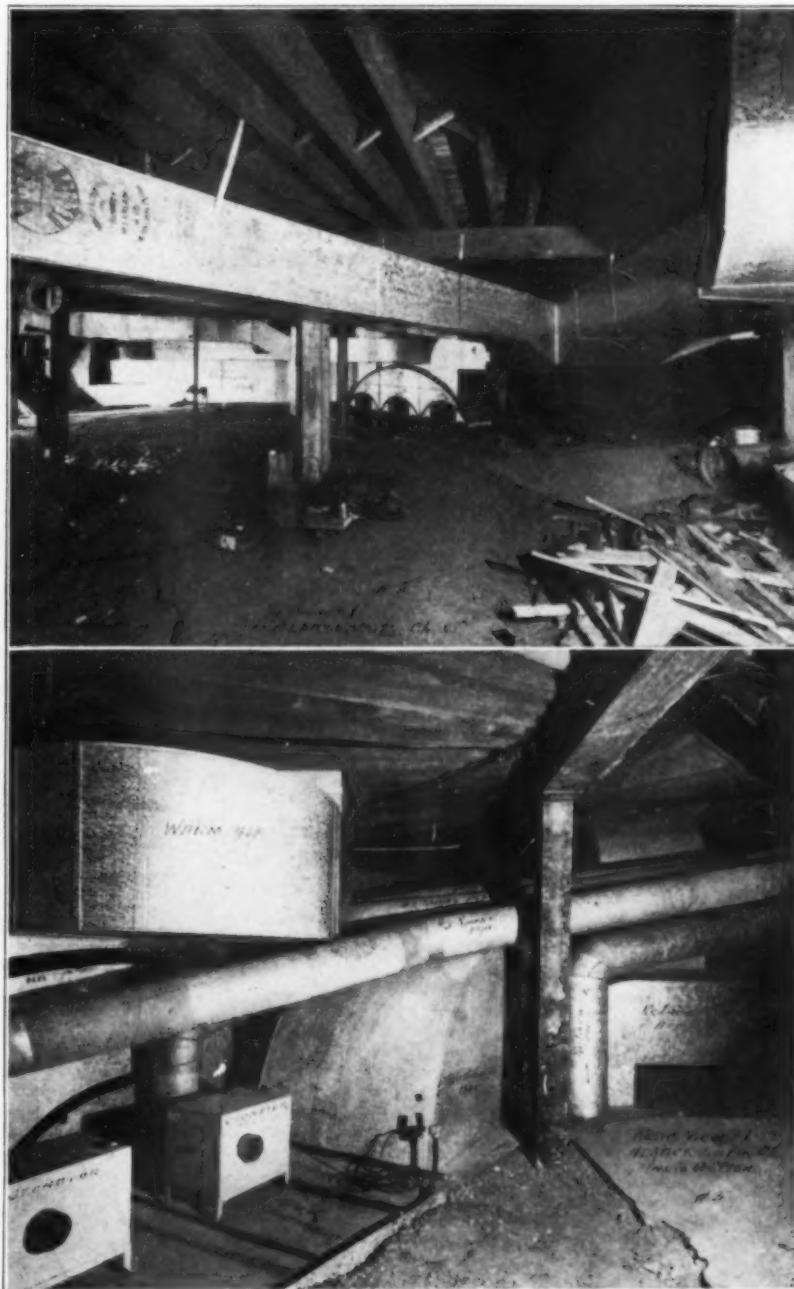
"Figuring from our saving in fuel over previous winters with our old steam and hot air plants, we have instructed our sexton to order 40 per cent less coal for this winter's supply. This saving of fuel is in itself a great factor, notwithstanding the comfortable heat we are receiving.

"I might say in closing that the

temperature on floor and ceiling varies very little, and janitor informs us that there is practically no dust accumulating on the window sills and pews, as was the case with our old system. It is positively the cleanest system I have ever seen.

"If at any time you wish to show anyone our system, you are at perfect liberty to do so and you can use my name as reference at any time."

There are testimonial letters for the other jobs also, but space did not permit their publication.



(Above) Second View of Warm Air Trunk Lines in Basement of Alsace Lutheran Church. (Below) Rear View of Ducts and Smoke Flue Construction in Alsace Lutheran Church

Fort Wayne, Indiana, Home Owner Becomes Warm Air Heating Enthusiast

Installer Sells Many Jobs on Complete Satisfaction to Owner of One

THAT the warm air heating system is already coming to be recognized as the best for the larger than average sized home is proved in the case of A. W. Dorch, Fort Wayne, Indiana. One of the accompanying illustrations shows the beautiful Dorch residence as it appears today three years after it was erected and equipped with a modern warm air heating plant by C. Miller & Sons, 1115 Broadway, Fort Wayne, Indiana.

Considerable interesting history for the warm air industry is attached to selling of this heating job.

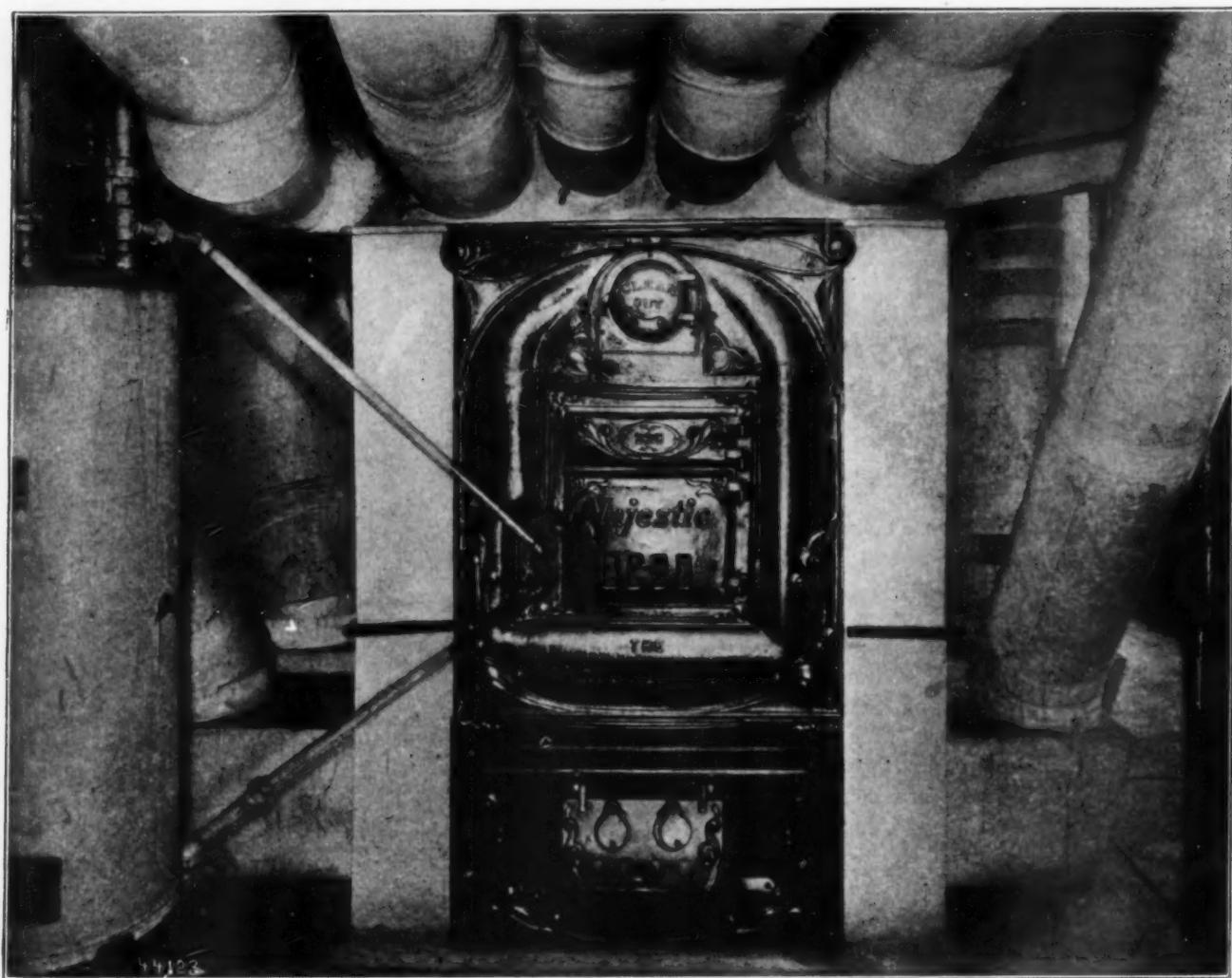
In the first place Mr. Dorch is moderately conservative. This tendency of his was somewhat encouraged in the matter of installing a heating system when it was seen that the cost of the house would run slightly higher than was anticipated, which provoked a desire to cut here and there where it was thought no radical harm would be done.

Under the circumstances, the sale of the warm air heating system that is strictly a Standard Code job in every respect would have gone by the board. A cut price job would have been installed, with the result

that the warm air heating industry would have received another black eye because of a gross misrepresentation.

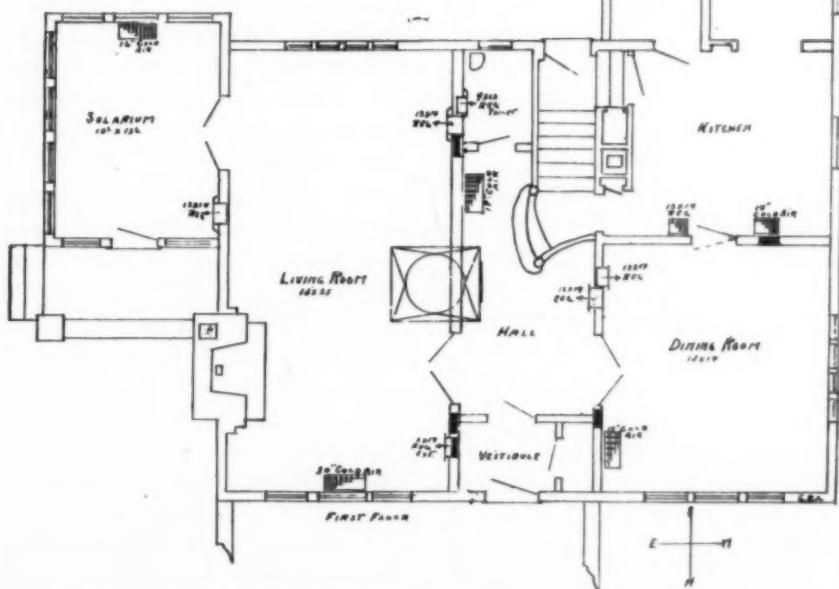
C. Miller & Sons, however, were on the job. They saw the architect and presented their case to him. They saw the home owner and drew a true picture to him. They saw the architect and the home owner together and permitted the warm air heating system to stand or fall on its own merit after taking good care to acquaint those concerned with the true merit.

That is why it was said that there



Basement of A. W. Dorch Residence, Fort Wayne, Ind., Showing Method Employed by C. Miller & Sons, Furnace Installers, in Taking Off Warm Airs and Also Type of Cold Air Returns Used

was something interesting about the history of this warm air heating installation. Here was a home owner



First Floor Plan of Dorch Residence, Fort Wayne, Ind., Showing Location of Cold and Warm Air Registers

who knew little or nothing about the new era in warm air heating. His experience with a warm air heating

system, if any at all, was anything but satisfactory. Nevertheless, in order to save on the expense of the

whole project, he was willing to forego putting in the more expensive steam or hot water system. That was his attitude of mind before the warm air heating people of the new era had had a chance to talk to him and to the architect.

"After taking," however, the owner had the pleasure of having his attitude entirely changed for the better about warm air heating. His knowledge of it was greatly increased, and he cheerfully paid a much higher price than he expected to pay for the warm air heating system that was put into his home. Since that time, for that was three years ago, C. Miller & Sons have sold a great many warm air heating jobs by way of reference to this job.

This job is not a model job in one sense of the word and in another it is a model job. It is an ordinary Standard Code job that is installed in the ordinary way employed by C. Miller & Sons, but it has given its owner complete satisfaction for three winters.

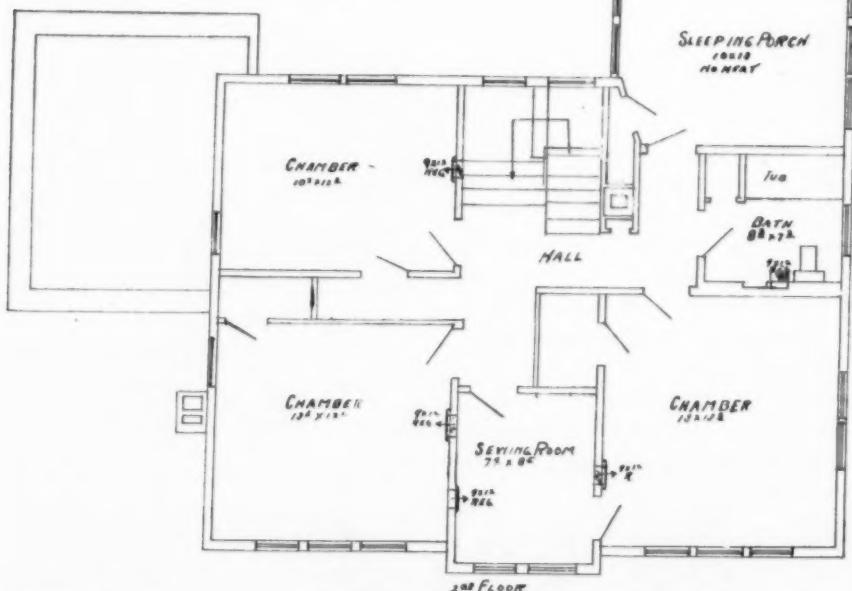


Exterior View of A. W. Dorch Residence, Fort Wayne, Ind., in Which C. Miller & Sons, 1115 Broadway, Fort Wayne, Ind., Made the Installation Three Years Ago

In regard to the mechanical details of the installation itself, these can be seen from the illustrations that are given herewith. There are eleven warm air runs, totaling 1,008 square inches of pipe area. There are five cold air returns, amounting to 1,077 square inches of pipe area

installed was a Majestic Down Draft. The job was designed by F. H. Speaker.

The basement in which this installation was made would be considered as ideal by warm air heating



Second Floor Plan of Dorch Residence, Showing Location of Stacks and Registers to the Second Floor.

going into the casing at the bottom. Here it is seen that there are 69 square inches more cold air being returned to the furnace than there are square inches being taken off. How the warm airs are taken off and the type of cold air boots used can be seen in one of the accompanying illustrations. The furnace

men. It is seven feet six inches high, and is a 2-compartment affair.

It also might be added that the owner has had the satisfaction of having his coal bill reduced considerably. The system does its work very well on ten tons of fuel for each season, which is a satisfaction to the owner.

Cease Permitting Competitor to Run Your Business for You

Keep Own Eyes on True Market Conditions and Nose in Own Business

By E. B. LANGENBERG*

MANUFACTURERS, jobbers and installers can, without a doubt, look forward to 1928 with a great deal of optimism. This pre-

diction is not based on an optimistic feeling, but is determined by the possibilities that exist at the present time.

Without doubt, there are hundreds of thousands of plants still in use that could possibly be brought up to the Standard Code by remodeling. These plants would prove much more efficient and economical were they remodeled. It would be

good business for the user to have his system brought up to date and this would be good business for the dealer. Leaving out of consideration the possibilities of a reduction in new construction, the field mentioned above offers unlimited opportunities to the man who will go after this business.

Too many of us are inclined to let business walk in the front door, but when one analyzes the successful firms and individuals and the causes of their success, it is quickly discovered that they have been exceptionally progressive and energetic in going out and getting business.

Must Fight Hard for Business Today.

There are a great many things sold today which the general public does not want and some of these companies seem to be making tremendous gains in their sales and output. It is useless for us to sit still and complain about their success when we in our business are making no effort to do the most obvious thing—go out and sell.

There is one weakness in the present sales method of this industry which is equally applicable to practically every other industry and that is that we permit our competitors practically to run our own business. By this is meant we listen to every bit of loose conversation relative to prices and either from jealousy, selfishness or fear, cut our profits to a point where we are soon out of business. Every man likes to be in business for himself, but in innumerable instances it has been found that the man who keeps his eye on market conditions and his nose in his own business is the one that is proving the most successful. Overcoming this weakness with a policy of good treatment to the public and a fair profit to one's self, makes life more enjoyable and, to say the least, a great deal more satisfactory.

The Standard Code is a means to an end and every installer, large or small, should utilize it on every possible job, as it will pay dividends in the long run.

*This article on the advisability of ceasing to allow competitors to run your business was written especially for the 34th Warm Air Furnace Special of AMERICAN ARTISAN by E. B. Langenberg, Vice-President of the Langenberg Manufacturing Company, St. Louis, Missouri.

Public Now Educated Have Greater RESPECT for Warm Air Industry

Greater Profits Certain to Be Reward for Research and Better Merchandising

By ALLEN W. WILLIAMS*

EVERY wide awake industry and trade association reviews each passing year to catalogue what progress, if any, has been made, using the result as a guide in planning for the new twelve months before them.

Until recently the volume of sales and amount of profit were perhaps the only measures used in the warm air heating business to determine progress. Since their maintenance is as essential as ever, and competition within and from without the industry has made it necessary to find means to that end other than high-power selling, it has caused the manufacturers of warm air furnaces and accessories to support liberally, research, publicity, real engineering and good installation.

No Large Gains in Volume or Profits Shown in 1927 Business

Hence, when we now review a past year our people take into consideration not only volume and margin, but developments, improvements and changes which may have occurred in design, mechanical construction, new accessories, improvement in building materials, research information, publicity and legislation.

Available data seems to indicate that on the whole neither volume of sales nor the profits in warm air heating have made gains to speak of during 1927. We are no different than other staple industries in this, but without the helps enumerated above it seems reasonable to believe that the sales and profits from our business would have shown a very marked decline, not

because warm air heating is losing in favor, for it is more popular than ever, but because the competition among industries for a share of the purchaser's dollar would have been much more effective against us.

During 1927 the National Warm Air Heating and Ventilating Association has been more active than ever, and its officers and members have the satisfaction of knowing that their national society has grown

in furnaces themselves have been noted. The success of the association's service in measuring furnaces for its members during the past eight months of this year is also an acknowledged fact.

The faith of those having any part in the manufacture, sale or installation of warm air heating plants is certainly stronger than a year ago, while on the other hand the consumer has been educated to greater respect for warm air heating.

The better service those in our industry are able to render and will no doubt render during 1928 will increase to some extent our rather undersize profits; on the other hand the purchasers of warm air heating plants will receive better value, since they will secure more efficient, durable and satisfactory heating plants.

The stocks of manufacturers and with the installers are small; this is a favorable condition at the opening of any new year. The progress which our industry has made through the work of its association during 1927 will be reflected in better and more business for the warm air heating industry in 1928.

Efficiency of Furnace Increased with Addition of Fan Manufacturers Agree

Warm air furnace manufacturers are pretty much agreed that a fan attached to a warm air heating system under the proper circumstances will increase the efficiency of the heating system.

This is proved by the fact that 85 per cent of the manufacturers replied in the affirmative to the question, "Do you believe that the addition of a fan to a gravity warm air heating system will increase the plant efficiency?"



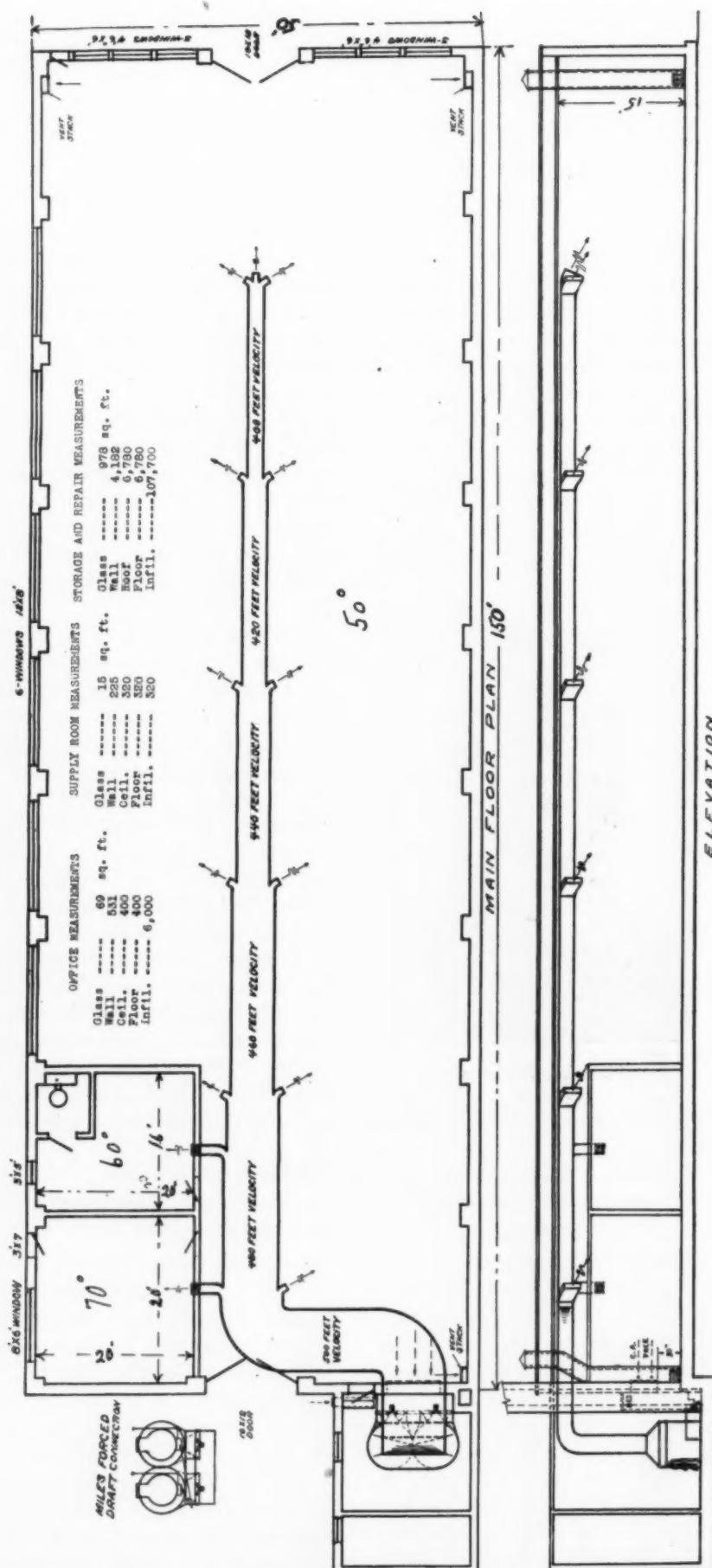
Allen W. Williams

larger and stronger than it was at the close of 1926.

Effects of Research Work Now Beginning to Show Results

During 1927 its publicity has been changed from an experiment to an established fact. Its research work has made further important headway and the Fourth Edition of the Standard Code containing some necessary, but not radical changes has been published, supplemented by the Ordinance Form of the Standard Code. During the past twelve months many improvements in registers, warm air pipes and fittings, furnace fans, humidifiers and

*Article written exclusively for the 34th Warm Air Furnace Annual of AMERICAN ARTISAN by Allen W. Williams, Secretary of the National Warm Air Heating and Ventilating Association.



The Garage Heating Problem

HEAT LOSSES

By GEORGE J. DUERR

In connection with the preparation of this 34th Warm Air Furnace Annual AMERICAN ARTISAN sent out a questionnaire which asked for suggestions from warm air furnace installers on what they would like to have appear in this issue. A great many of the replies indicated that articles on forced air heating for garages, schools, churches and the like would be very acceptable.

Therefore, as a part of the material which we are happy to present to our readers in this issue, we have included a garage heating job worked out according to the B. t. u. method.

The problem which we have worked out, as illustrated herewith, shows a garage whose dimensions are 50x150 feet and 15 feet ceiling. The building has an office and a supply room toward the front. It is desired to heat the office to 70 degrees, the supply room to 60 degrees and the storage and repair room to 50 degrees. The walls of the building are 8-inch common brick. The roof is copper placed upon 1-inch boards. The floor is concrete on dirt.

The office and supply rooms are sealed with lath and plaster, with an air space between the ceiling and the roof.

The problem is to find the greatest area of the heater which will produce heat enough to make good the heat losses from this building. The second portion of the problem is to find out how large the ducts must be to carry the heat to these different rooms.

Before we can do anything at all towards determining the size of the furnace required or the size of the various ducts, we must find out how fast the heat which we put into this building is going to escape through the walls, the windows, doors, ceilings, roof and floors. After having

PIPE SIZES

determined this, we are then ready to put in a furnace whose size will permit the burning of sufficient fuel to replace the heat lost through the various materials of which the building is constructed.

In order to do this we find the amount in square feet of each type of material in the building. In this problem these figures are given in the illustration under the headings, "Office Measurements," "Supply Room Measurements," "Storage and Repair Measurements."

With this information we are ready to apply our factors, and this is done in the following manner:

Heat Loss from Office

	"K"	Temp. Dif.
Glass	69 × 1.10 =	76.00 × 70 = 5,320.00
Wall	531 × .23 =	122.13 × 70 = 8,549.10
Ceil.	400 × .32 =	128.00 × 35 = 4,480.00
Floor	400 × .12 =	48.00 × 20 = 960.00
Infil.	6,000 × .02 =	120.00 × 70 = 8,400.00
		27,709.10

$$C. F. H. = \frac{B. t. u. \times 55}{T. R.} = \frac{27,709 \times 55}{75} = 21,213 \text{ C. F. H.}$$

Where:

C. F. H. = Cubic feet of air per hour.
B. t. u. = Heat loss from building.
T. R. = Temperature rise.

55 = Constant "K."

$$P. A. = \frac{C. F. H. \times 144}{V. \times 60} = \frac{21,213 \times 144}{30,000} = 101 \text{ sq. in.}$$

P. A. = Pipe area.

V. = Velocity of air per minute.

To this add 10 per cent for friction and 10 per cent for transition from round to rectangular pipe, and the pipe area becomes 121 sq. in. or 10x12-inch duct.

Heat Loss from Supply Room

	"K"	Temp. Dif.
Glass	15 × 1.10 =	16.50 × 60 = 990.00
Wall	225 × .23 =	51.75 × 60 = 3,105.00
Ceil.	320 × .32 =	102.40 × 35 = 3,584.00
Floor	320 × .12 =	38.40 × 20 = 768.00
Infil.	320 × .02 =	6.40 × 60 = 384.00
		8,831.00

$$C. F. H. = \frac{B. t. u. \times 55}{T. R.} = \frac{8,831 \times 55}{80} = 6,071 \text{ C. F. H.}$$

$$P. A. = \frac{C. F. H. \times 144}{V. \times 60} = \frac{6,071 \times 144}{30,000} = 29 \text{ sq. in.}$$

To this add 10 per cent for friction and 10 per cent for transition from round to rectangular pipe and our pipe area is 35 sq. in. or 5x7-inch duct.

Heat Losses from Storage and Repair

	"K"	Temp. Dif.
Glass	978 × 1.10 =	1,075.80 × 50 = 53,790.00
Wall	4,182 × .37 =	1,547.34 × 50 = 77,367.00
Roof	6,780 × .45 =	3,051.00 × 50 = 152,550.00
Floor	6,780 × .12 =	813.60 × 20 = 16,272.00
Infil.	107,700 × .02 =	2,154.00 × 50 = 107,700.00
		407,679.00

$$C. F. H. = \frac{B. t. u. \times 55}{T. R.} = \frac{407,679 \times 55}{90} = 260,248$$

$$P. A. = \frac{C. F. H. \times 144}{V. \times 60} = \frac{260,248 \times 144}{30,000} = 1,249 \text{ sq. in.}$$

To this add 10 per cent for friction and 10 per cent for transition from round to rectangular pipe and the area is 1,497 sq. in. or a 37½x40-inch duct.

407,679
8,831
27,709

$$C. F. H. = \frac{445,219 \times 55}{90} = 272,078$$

$$P. A. = \frac{C. F. H. \times 144}{V. \times 60} = \frac{272,078 \times 144}{30,000} = 1,305 \text{ sq. in.}$$

To this we add 10 per cent for friction and 10 per cent for transition from round to rectangular pipe and our main duct size is 1,565 sq. in. or a 39x40-inch duct.

$$G. A. = \frac{B. t. u.}{C. R. \times C. V. \times B. E. \times R. E.} = \frac{445,219}{8 \times 12,000 \times .70 \times .90} = 9.8 \text{ sq. ft.}$$

Where:

G. A. = Grate area.

C. R. = Combustion rate.

C. V. = Calorific value of the fuel.

B. E. = Bonnet efficiency of furnace.

R. E. = Register efficiency.

Since there are twelve openings in the duct running to the storage and repair room of the garage, we divide the square inch area of the duct by 12 to get the size of the first opening. We then subtract the quotient from the total, and divide the remainder by 11. The quotient this time will be the size of the next two openings. Then we subtract from our number this time twice the quotient, because we take off two ducts and then divide the remainder by 9. This procedure we continue to the end.

It is the desire in giving this article to acquaint warm air furnace installers with the B. t. u. method of calculating heat losses for the larger buildings, so that when they run up against this type of work they will not be entirely at sea. Any question you may have after reading the article will be gladly received by the Editor.

Warm Air System REPLACES Direct-Indirect Steam Plant IN FACTORY

Owner Spends \$9,000 on Replacement and Is Well PLEASED WITH RESULTING ECONOMIES

THE warm air heating industry is forcing its service to the attention of an ever widening circle of prospective users. In the industrial sphere particularly is warm air heating in conjunction with forced air circulation performing actual miracles in the way of effecting economies and giving better heating service than many of the owners of these factories had thought possible. Many factory owners are now actually replacing their steam or hot water systems with the warm air, where a few years ago they would no more have thought of trusting to this type of heating system than they would have put in a series of heating stoves.

One very interesting instance where a warm air heat-

ing system has replaced a direct-indirect steam coil system operated with a blower is had in the factory of the North Western Expanded Metal Company, 1719 North Kostner Avenue, Chicago.

In this instance we have a job demanding two different temperatures. A temperature of 70 degrees is required for the office of the building; the paint room also requires 70 degrees, but on account of the paint fumes in this room it was inadvisable to recirculate this air, calling for a special heating arrangement; then there is the warehouse

and machine shop where 55 degrees must be maintained.

The heat losses from this building are quite large, there being about a 1,250,000 B. t. u. loss per hour which must be replaced in order to keep the temperature at the required height.

The building is 200 feet wide and 220 feet long on the narrow side, while at the wide side it is 272 feet long, adding considerably to the difficulty of heating it.

The office, too, a 20 x 40-foot room, offered a problem to the heating contractors, the G. & S. Stove & Furnace Company, 4224 West North Avenue, Chicago, as it was located in the farthest corner from the heater, a distance of some 320 feet.

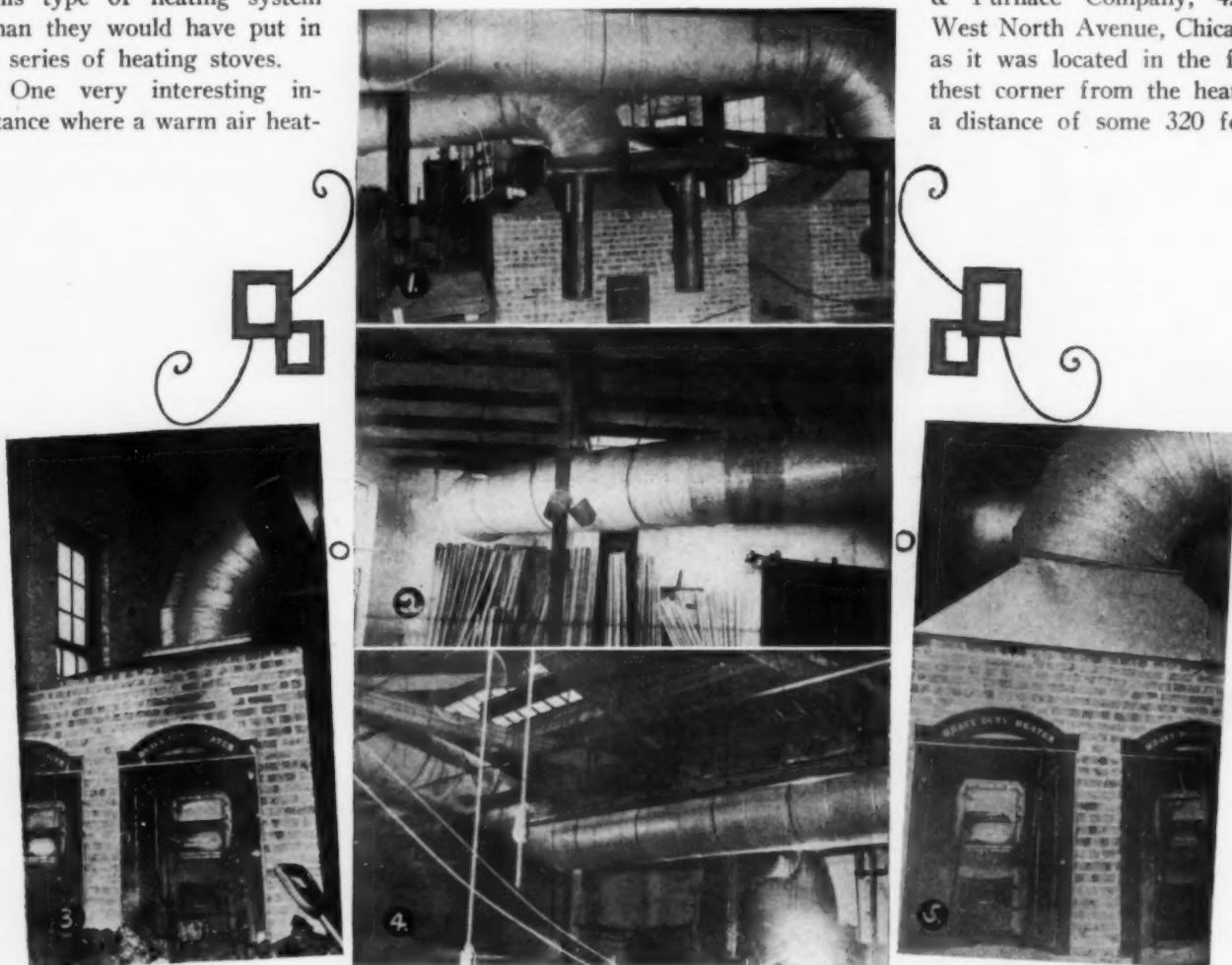


Figure 1.—Rear View of the Two Heavy Duty Warm Air Furnaces Installed in the Plant of the North Western Expanded Metal Company, Chicago. Figure 2.—Section of the Duct Running to the Storage Room and Office. Figure 3.—Front View of One of the Furnaces. Figure 4.—Section of Warm Air Duct in Machine Shop. Figure 5.—Front Section of Furnace Showing Bonnet Construction

The roof of the building is 14 feet high at the sides and 19 feet high at the center.

The warehouse of the plant is filled with thousands of tons of steel and iron in sheets and bars, and also in the made up form ready for shipment. The machine shop is filled with ponderous metal stamping, shearing and cutting machinery, as well as large stocks of steel sheets and bars, presenting a heating problem of no small consideration.

The heating system installed consisted of two Lennox Hercules heavy duty warm air furnaces. These furnaces are set inside of brick casings. There are two 50-inch round ducts taken from the bonnets of these furnaces, one running to the warehouse and office and paint room and the other running to the machine shop. The warm air is forced through these two ducts by four Miles No. 2000 fans, and the job is now working perfectly.

The cost of this job totaled \$4,890. In addition to this job, the same G. & S. Stove & Furnace Company put in a similar job for the North Western Expanded Metal Company at Jeannette, Pennsylvania, where this company has a second factory. This Jeannette, Pennsylvania, job has three Lennox Hercules heavy duty warm air furnaces, and the temperatures required were 60 degrees in the warehouse and 70 degrees in the paint room. The cost of this latter job was \$4,235.

The selling of this warm air heating layout was even more difficult than many others that furnace men have run up against, because of the fact that it was replacing a direct-indirect steam system. The owner already had the habit of using steam to heat his plant. But the new job does the work required of it in a much better manner than the old did. It is a more compact system and takes up less room than did the old one, and the owner is very well satisfied with it. The economies it is already effecting in heating his building are considerable. The accompanying illustrations give the

reader a good general idea of the appearance of the system as it stands today. Here we have one warm air furnace installer taking a job running all together \$9,125, where a few years ago this would never have been possible. There are great possibilities in the warm air heating industry for the man who knows his stuff and who is willing to go out after the business. These \$4,000 and \$5,000 jobs do not come to these men without solicitation. They are worked for and procured only after the salesman has convinced some hard-headed exceedingly practical business man that the warm air system has a merit superior to any other type of unit. It must be sold on this basis or it isn't sold. The G. & S. Stove & Furnace Company is forging ahead in warm air because they have the right attitude of mind toward it.

Finds Cold Air on Either Side of Casing More Efficient Than on Back

A letter reached us under date of December 20th from R. S. DeHoog, 738 East Swan Avenue, Webster Grove, Missouri, containing some interesting comparisons between the operation of two furnaces in homes standing side by side, the installations being almost identical, with the exception of the location of the cold air furnace boots.

"On plant No. 1," says Mr. DeHoog, "the boots were set as close together as possible at the back, with a division plate between the boots inside of the casing and extending 10 inches above the boots, equipped with deflecting plates.

"On plant No. 2," continues Mr. DeHoog, "the boots entered the casing on the side, one on the left and the other on the right. The velocity of the wind from the northeast was about twenty-five miles per hour, and the temperature was about 8 degrees above zero.

"In the first instance mentioned the temperature was noted to be as follows: Northwest room, 71; living room west side, 74; northeast room, 72; east and south rooms, 76; bathroom, 87.

"In the second plant the northwest room temperature was 74; living room, 75; northeast room, 74; east and south rooms, 74; bathroom, 88.

"This comparison shows that the plant No. 2, which returned the air on either side of the furnace casing, was giving better distribution than the one where the cold air boots entered the back of the casing.

"The leaders to the northwest and northeast rooms were one size larger than called for by the Standard Code, because of the total lack of a wind break to protect these rooms from the winds. Aside from this, both jobs were installed strictly in accordance with the Code.

"Some figures on the coal consumption of the two plants might also hold an interest. Plant No. 1 used about 8½ tons of 13,000 B.t.u. Zeigler coal. Plant No. 2 used a little less than 7 tons of the same coal. These houses were of good frame construction, with five rooms and bath."

Installers Quite Indifferent About Advertising

Warm air furnace installers are indeed quite indifferent about taking advantage of their opportunities to get more business. In spite of all that has been written and said about the great pulling power of the window display, furnace installers are not 100 per cent agreed on this point. A questionnaire sent out by AMERICAN ARTISAN in connection with the preparation of its 34th Warm Air Furnace Annual revealed the fact that of the total number answering the question, "How do you advertise your business?" only 71.48 per cent said they employed the window. Of those who said they used the local papers there were 82.20 per cent. Direct-by-mail polled only 57.18 per cent.

Of the total number who answered the question, only 25 per cent said that they used four types of advertising; namely, window displays, local newspapers, direct-by-mail, and signs on their trucks.

How Will Majority of Homes BE HEATED in 1928?

*Does the Answer Depend Upon HOW
WELL Our Merchandising Is Done?*

By L. WAYNE ARNY*

ONE year from today certain changes in the warm air industry will have taken place. Either the ratio of homes heated with warm air as against other heating systems will have increased in favor of warm air or they will have decreased. It is highly improbable that the proportion will remain stationary. It seldom does in any business.

The factors which enter into an increase in this ratio form the basis of about as profitable a discussion as could well be imagined. Upon them depends the future of the industry.

Any consideration of an industry, confined solely to that industry is of little value in these days when one industry is so dependent upon others for its success, since there is hardly an industry today so unique and individualistic that it can go its own way regardless of the complex changes that influence business as a whole. Now, then, does the warm air industry fit into the general scheme of things today and what readjustment, if any, is necessary for it to hold its level during the competition of a new year?

Is Warm Air Industry Finding Its Niche in Scheme of Things?

Too often we lose sight of the fact that we deal with a commodity that goes into the home. Furnaces are a necessary part of home equipment. The moment we recognize this, just that soon must we also recognize the fact that being a part of the home we are in competition with other things, many just as

essential as ours, that make the ever growing composite of home life. With most things in the home, women have an important part in their selection, in dictating the way that they are used and in the form in which they must be supplied. That is more true with furnaces than many of us realize.

Furnace Manufacturers Show Colossal Indiffer- ence to Appearance

If you will place on display the various household necessities that



L. Wayne Arny

today are considered essential in the normal home, you will be impressed by one outstanding fact—the furnace is the most uninviting looking object in the whole collection. Contrast it with the refrigerator, the plumbing, the various electrical appliances, the furniture, the radio, the steel trim in the house, the roofing, the masonry, etc., etc. This is largely the result of woman's influence upon the goods that go into her home. She demands not only that these goods shall be practical and efficient, but she also insists that they must be good looking. Color, appearance, attractiveness

are today necessary qualities to any article that is to meet competition in the home field successfully. And of all the articles in this long list the furnace is the most outstanding example of indifference to public demand.

We have been very busy finding out how a furnace should be designed to give greatest efficiency and economy. Through the nine years of research of the association we know a great deal about those things now. We have also been engrossed with problems of production; how more furnaces can be sold, to whom and where. And all of the while we have been blind to the insistence of our buying public, much of which is done by women, that our product be attractive as well as efficient and economical.

If there is any doubt on this point, a simple experiment will demonstrate the truth of it very convincingly. Put side by side on the sales room floor a refrigerator with the old varnish finish. Insulate it so that it will equal the finest refrigerator made in its general refrigerating qualities. Put beside it one with the same insulation and general construction, with nickel hinges and sea green duco finish. Which will be the easier to sell?

Let's Make Our Merchan- dise Attractive to Pur- chaser's Eye

Carry the experiment farther. Place in the cellar a well made furnace; install according to the Standard Code. It will represent about as fine a heating job as it is possible to have. Keep the casing exposed in all of its unattractive nakedness; cover the pipes with one layer of asbestos paper—the kind that looks dirty in a few days. Leave the front of the furnace with the same raw look that it had when it came

*Article on "How Will Homes Be Heated in 1928?" written exclusively for AMERICAN ARTISAN 34th Warm Air Furnace Annual by L. Wayne Arny, Director of Publicity, National Warm Air Heating and Ventilating Association, Columbus, Ohio.

out of the foundry. Go away from the job with scraps of furnace cement lying on the floor, with the general muss and dirt incident to its installation still in evidence.

In another house install the same furnace, in the same way. In addition, put color on the front and on the casing. Of what kind makes little difference so long as it is durable and attractive. It can be paint, duco or enamel or anything else that will fulfill the requirements of being durable and attractive.

Cover the pipes with air cell paper and tint the covering in the same way. Chip out a little of the concrete floor before the ash pit door and lay rough brick as a hearth before a fire place. Make the job immaculately clean when you leave it. On the side of the coal bin place a few rough pegs, painted the same color as the furnace, on which to hang the fire tools. Think up a lot of other little tricks to carry out still further the scheme of color and attractiveness. Which of the two jobs do you think would be easier to sell? Which of the two jobs do you think would go farthest to build a heating reputation?

Price No Deterrent Where Proper Desire Is Created

There are dealers who will say immediately that the public will not stand the extra price which such innovations call for. That same statement has been made of every change ever made in any industry and has no real meaning. Whether or not the public would pay the extra price during 1926 or 1927 has very little to do with what it will pay in 1928.

As a matter of fact, the buying public is paying the premium for goods made as it wants them made—attractively and with color, and it will draw no distinction with furnaces.

But, after all, this matter of making furnaces and warm air heating more adaptable to the homes into which they go is merely a part of present day good business. With it must go better selling to compete with the ever increasing merchan-

dising developments of industries that compete for the same dollar that we seek; better service of the kind that admits that the consumer is always right and that he must be satisfied at all costs; better selling of the sort that gets a fair price, high enough to insure a legitimate profit on every transaction, and which places more stress on service and fair dealing with both the consumer and the immediate competitor than it does on price.

These are the factors that have already played an important part in the development of our leading industries today. There is nothing about the warm air business that makes it exceptional; no reasons why it can be different from all others which succeed. The days of poor work, poor and cheap selling, unfair competition, ignorant merchandising have been ruled out of business as a whole by the competition set up by smart men in many lines of endeavor. If more homes are to be heated with warm air in 1928 than were so heated during 1927, these same fundamental principles must obtain in the warm air industry. There can be no other formula for success.

Furnace Manufacturers Still Find It Necessary to Assist Some Dealers Financially

Warm air furnace manufacturers are pretty much individualists when it comes to the employment of methods of financing their dealers.

In answer to the question, "What method of helping your installers finance deferred payment sales do you employ?" 37½ per cent of the manufacturers said that they used none at all. Another 37½ per cent said that they used the 12 months' time payment paper plan, while 12½ per cent employed the finance company route. Five per cent used the sales contract method; 2½ per cent give fall dating on early orders, and five per cent did not answer the question.

In this connection another question was asked, "What percentage of your installers ask for assistance of this kind?" To this question

37½ per cent replied that none of their dealers ask for a method of financing, while 2½ per cent said that 40 per cent of their dealers did so ask. Another 37½ per cent said that about five per cent of their dealers ask for financing assistance. Five per cent said that 95 per cent of their dealers wanted financial assistance; 7½ per cent indicated that 50 per cent of their dealers wanted financial assistance, while the remaining 10 per cent said that only 14 per cent of their dealers asked for assistance.

Majority of Furnace Manufacturers Maintain Engineering Departments

Warm air furnace manufacturers are pretty much agreed that the dealers still need engineering service in the installation of their furnaces. To the question, "Do you maintain an engineering department?" 77 per cent of the manufacturers who answered the question stated that they do maintain engineering departments. Seventeen per cent replied in the negative, and the remaining six per cent made no reply.

This question, however, revealed the fact that warm air furnace installers are awakening to the need of getting more detailed information on the correct installation of furnaces. The consensus was that the proportion of those installers who do not ask for help because they are able to do it themselves is increasing.

In the compilation and selection of the material which you find in this our 34th Warm Air Furnace Special we have tried to give our readers an accurate pictorial cross-section of the warm air heating industry as it exists today. How well we have succeeded in our efforts we will leave entirely to our readers to say.

If you like our work in this respect, please be kind enough to tell us so, but if you think we have failed, we will appreciate it very much if you will tell us in what respect we have not met your anticipations.

Standard Code Pipe Area Chart Showing How the Heating Requirements of the House in Figure 1 Were Determined According to the Standard Code

"FOLLOW specifications!"
How often have those words

been uttered to the detriment of the building whose construction speci-

STUDY APPLI STANDARD CO

fications where compiled at the whim of some building contractor, owner or architect. There are scores upon scores of men in industry today to whom a set of written specifications are almost as sacred as the word of the good book. In their eyes a specification upon a plan must be carried out to the letter irrespective of the feasibility of the plan.

Every warm air heating contractor who has studied the subject with any care and who has the proper regard for the success of the jobs he installs knows that in order for a job to function properly it must

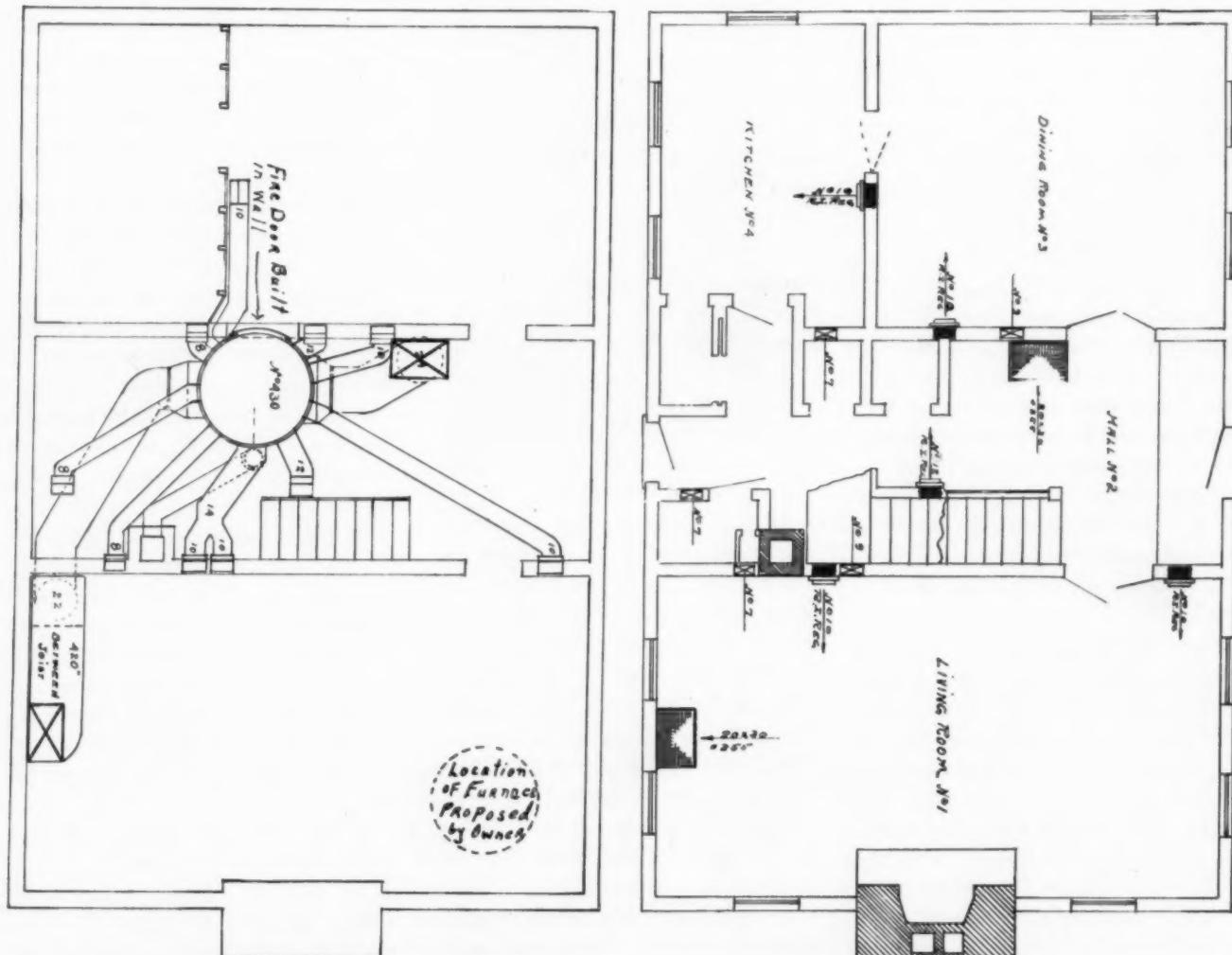


Figure 1—Basement and First Floor Plan of J. M. Allan Residence, Eureka, Illinois, Showing How Specifications Were Changed to Meet Needs of Heating Plans

CATION OF FURNACE DE

have balance and as near equality in the length of runs as is possible. In order that the runs may have balance, the furnace must be placed in a central location in the basement, regardless of whether that location conflicts or coincides with the ideas of the home owner.

Yet how many warm air furnace installers are there who would be willing to pass up a job rather than install it with the furnace stuck into one corner of the basement so that the basement would not be "all cluttered up with it" or when their ideas of furnace location come into conflict with those of the owner?

The practice has been to conform to the whims of the owner or architect regardless of the ultimate success of the project. This "chucking of principles" for immediate profit has brought the only result it could bring—disaster.

In this article we have set out to prove that the furnace installer can get a great deal farther and build for himself permanent good will by installing all of his furnaces according to the dictates of common sense and scientific reasoning, instead of according to the dictates of the home owner who is trying to save basement space or to avoid carrying his coal two or three steps.

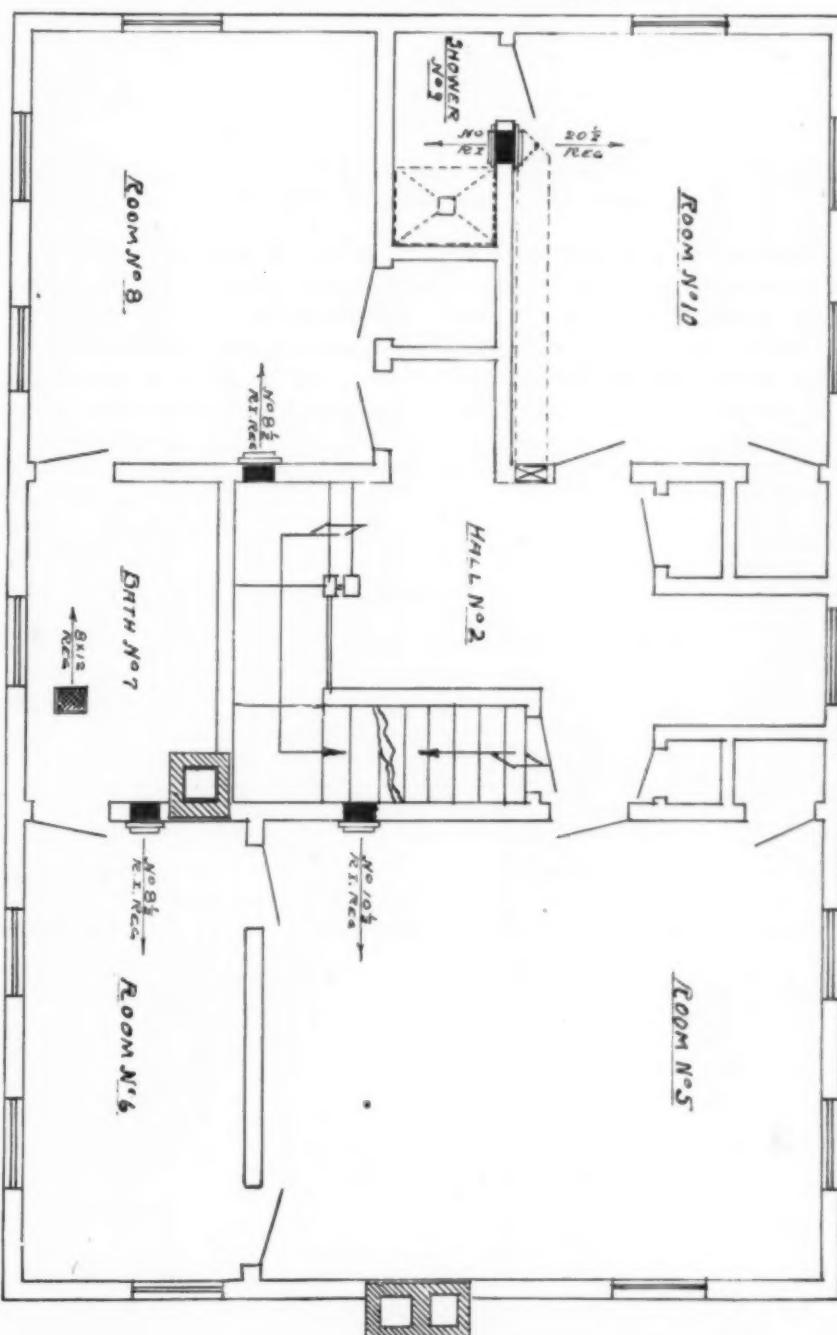
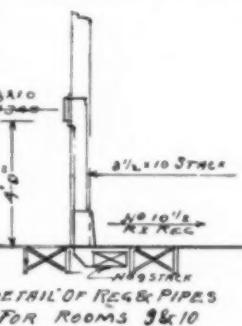
The accompanying illustration gives the floor plans and warm air heating system location in the home of J. M. Allan, Eureka, Illinois, installed by A. J. Wargo. The plans were drawn up by the engineering department of the Meyer Furnace Company, Peoria, Illinois.

In this installation it was the desire of the home owner and therefore of the architect to push the furnace into the extreme corner of the basement, as shown by the dotted line on the basement plan, and so read the specifications. A glance will tell any heating man that had

the owner's wish been carried out, the system would not have been given a chance to function properly. With the furnace installed in one corner of the basement, as was proposed, how could the warm air ducts have been taken off the entire circumference of the bonnet? You will perceive that this is a 10-room house, requiring an extreme nicety of balance in the heating system.

In this job referred to complete specifications had been drawn up, outlining the owner's wishes. The

plans for the heating system were referred to the Meyer Furnace Company's engineering department for their consideration. These engi-



Second Floor Plan of the J. M. Allan Residence, Showing the Heating Arrangement for the Second Floor

Standard Code Heating Requirement Chart Filled Out for the Heating Requirements of the K. B. Donnell Residence

neers demurred and said the furnace could not be placed as shown on the specifications. The architect said the furnace must go where the owner wished, did the Meyer Furnace Company engineers not know

what a specification sheet was? What else could they do but follow specifications?

What else they could and did do was to get the owner to change the specifications to meet their ideas

about scientific installation practice. At first there was a disinclination to meet the demands of the company, but when the company engineers said they were prepared to relinquish the job and to give the owner the names of about twelve other furnace men who would be willing to put a furnace in according to specifications without change, but that they could not in fairness to themselves and the warm air heating industry put their furnace in in any other way but the way they had it planned, the owner began to prick up his ears and appreciate the fact that he was talking to men who knew their business. He then readily consented to allow them to go ahead with their own method and plan, which is outlined in the illustrations given herewith.

Not only did the owner allow the furnace to be placed where it was assured of efficient operation, but he also went to the extra expense of having a new chimney constructed in the inside of the house. This

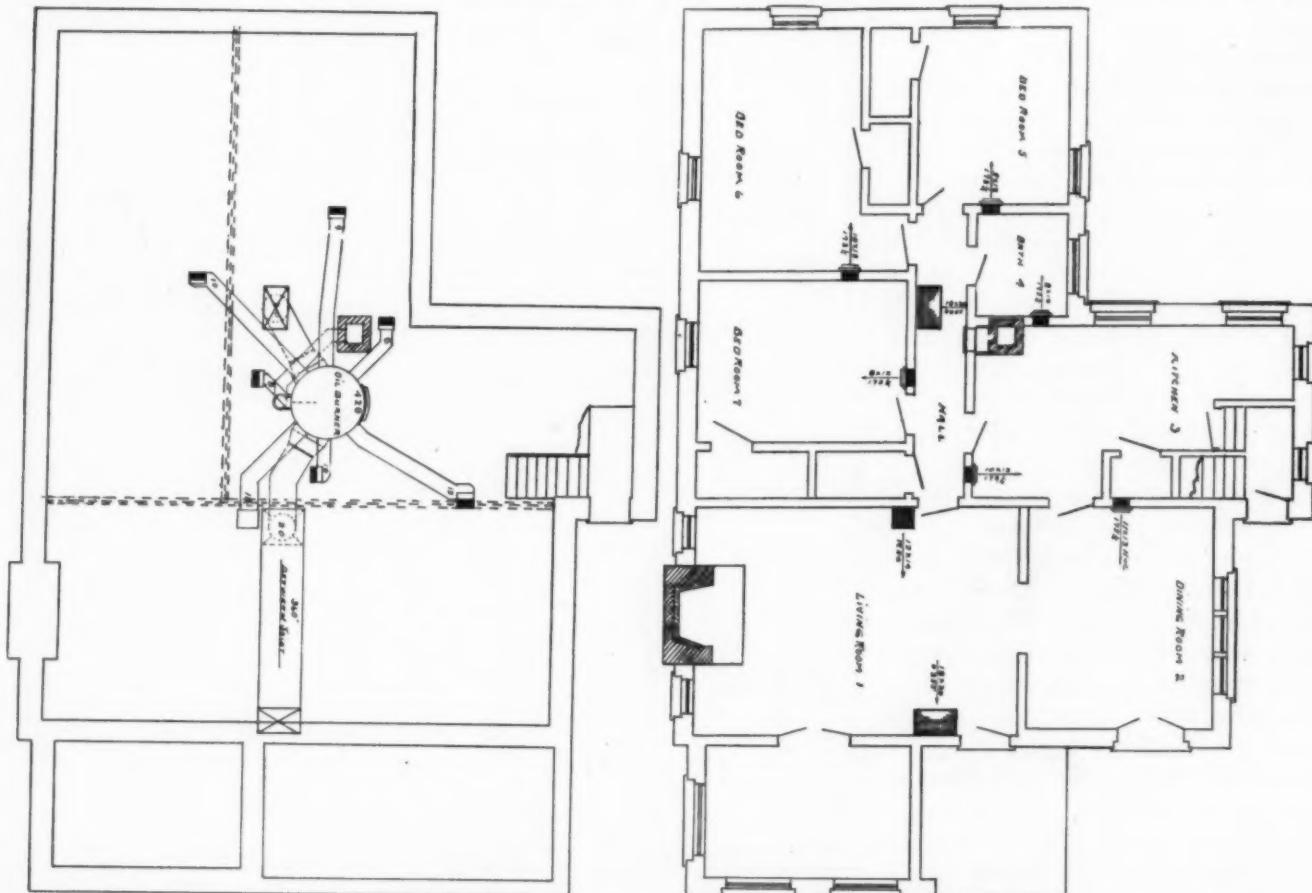


Figure 2—Basement and Floor Plan of K. B. Donnell Residence, Rochester, New York, Installation Being Made by William H. Long

**Code Chart Showing Heating Requirements of H. G.
Osborn Residence**

was accomplished by explaining to the owner the causes of draft and how the draft is lessened when the temperatures inside and outside the chimney tend toward equalization.

which is the case where a large portion of the chimney's surfaces have out-

side exposures—
a condition ex-
isting wherever
the chimney goes
up the outside of
the house.

So we have seen that specifications do not mean much to the engineer who knows the principles involved. If he can overcome those fundamental evils in the installation, he is far better off not to take the job at all. So in this case he got his way, with the result that the job is giving its owner the satisfaction anticipated.

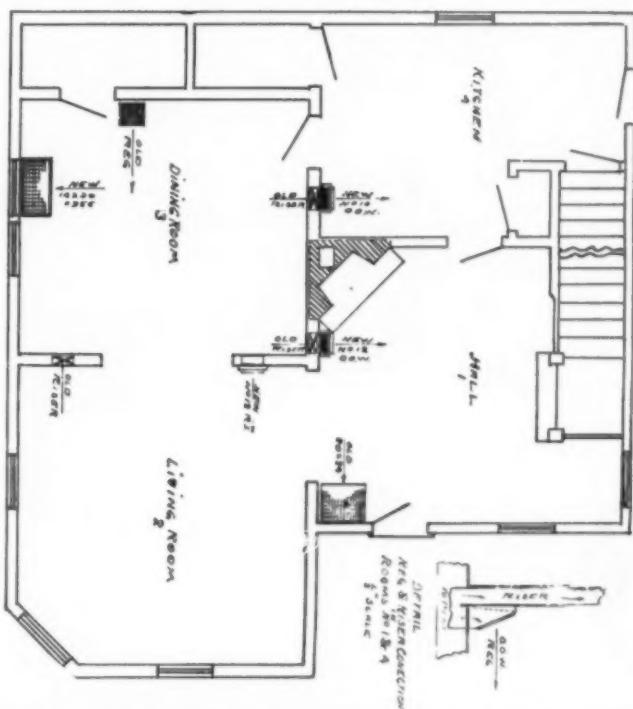
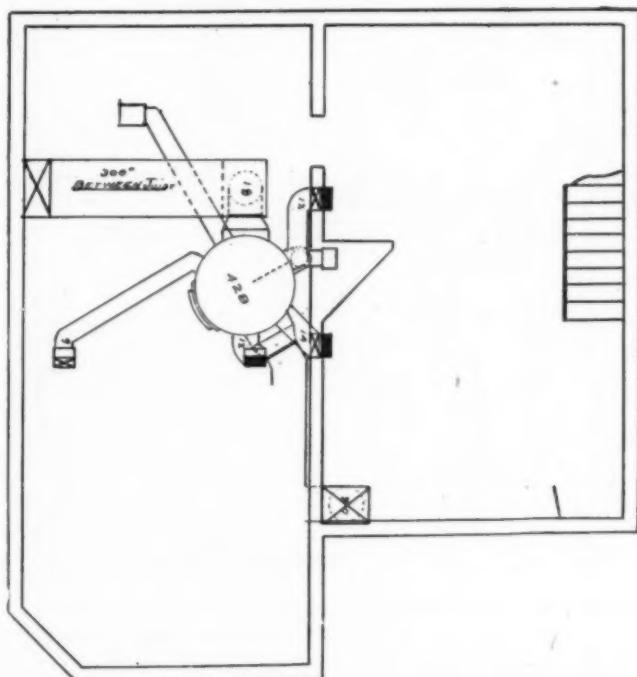
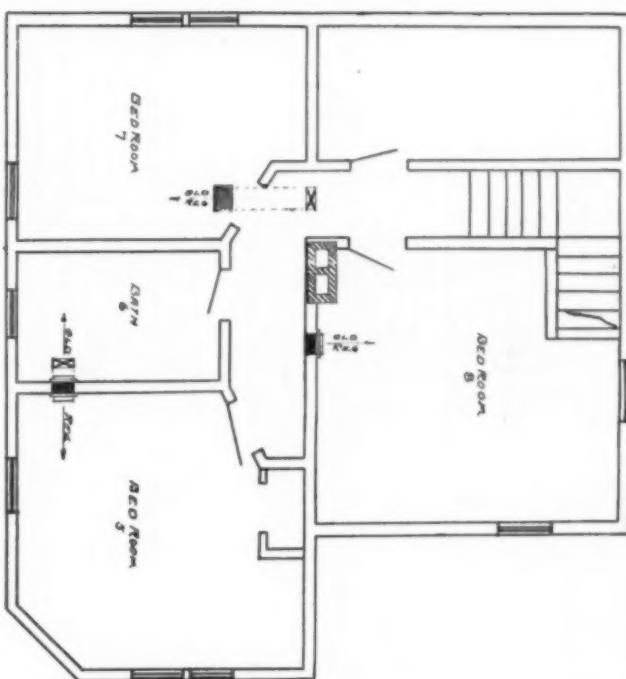


Figure 3—Basement, First and Second Floor Plans of the H. G. Osborn Residence, Savanna, Illinois, Having Peculiar Furnace Arrangement. Note Construction of Out-of-Wall Register

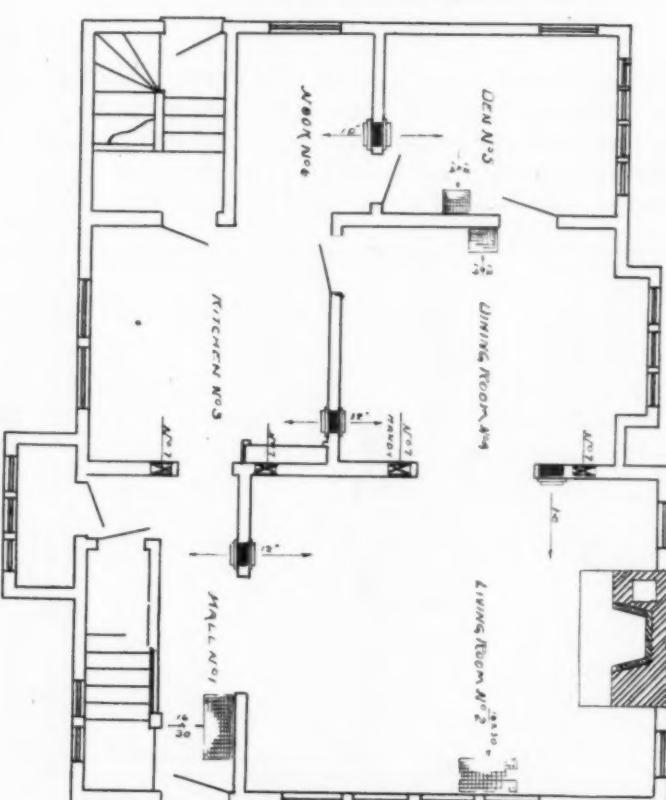
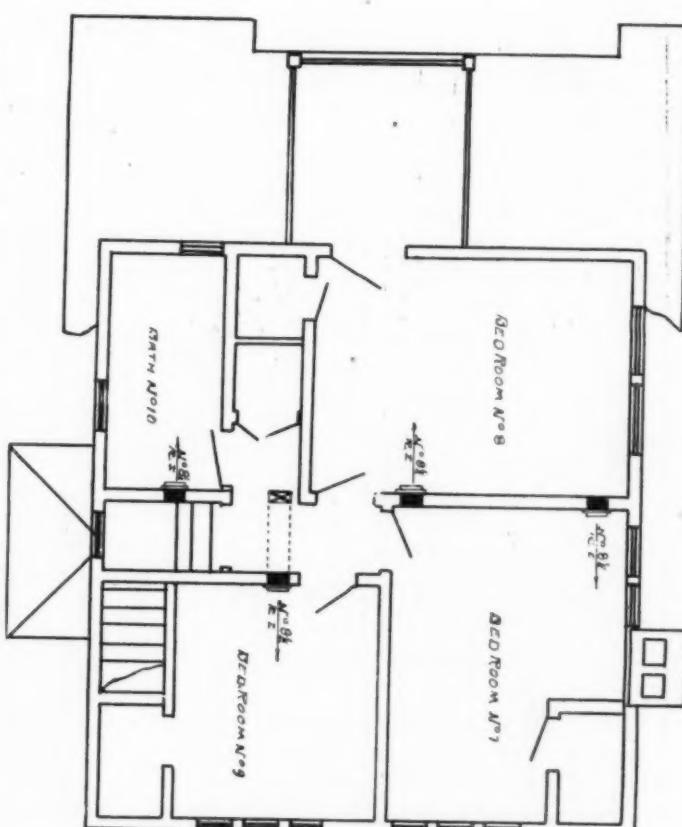
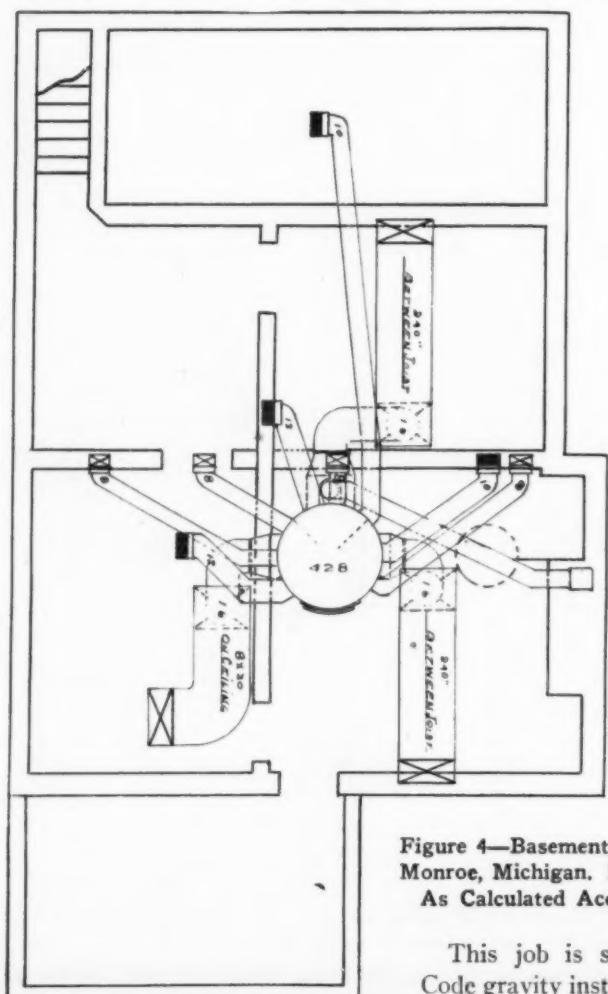
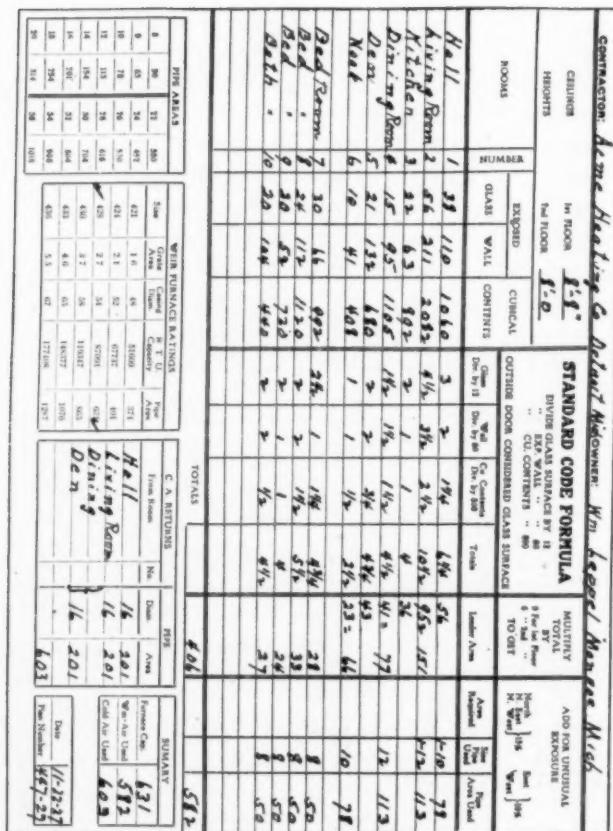


Figure 4—Basement, First and Second Floor Plans of the William Leppel Residence, Monroe, Michigan. Note How Single Long Run Is Arranged. Heating Requirements As Calculated According to the Standard Code Are Shown in the Chart Above

This job is strictly a Standard Code gravity installation. There are

766 inches of warm air required, which is divided into 9 runs, with

CONTRACTOR Limerick & Kincaid		OWNER H. W. Kincaid	
CEILINGS		1st FLOOR	
		2nd FLOOR	
ROOMS	NUMBER	EXPOSED GLASS	CUBICAL CONTENTS
OUTSIDE DOOR CONSIDERED GLASS SURFACE			
Living Room	1	80	190
Musical	2	18	180
Dining	3	45	75
Bed	4	32	75
Kitchen	5	26	92
Bath Room	6	12	32
Bed	7	32	157
TOTALS			
PIPE AREAS		WEIR FURNACE RATINGS	
1	50	22	200
2	63	54	407
3	78	56	530
4	112	58	656
5	154	56	704
6	201	52	864
7	284	54	988
8	314	56	1016
STANDARD CODE FORMULA		MULTIPLY TOTAL 0.0001 FT. TO GET	
DIVIDE GLASS SURFACE BY 10 EXP. WALL CU. CONTENTS		0.0001 FT. 0.0001 FT. TO GET	
Glass Div by 10		0.0001 FT. 0.0001 FT.	
Wall Div by 40		0.0001 FT. 0.0001 FT.	
Cu. Content Div by 800		0.0001 FT. 0.0001 FT.	
Total		0.0001 FT. 0.0001 FT.	
THERMAL AREA		ADD FOR UNUSUAL EXPOSURE	
North Exposure		North Exposure	
East Exposure		East Exposure	
West Exposure		West Exposure	
TOTAL		TOTAL	
C. A. RETURNS		PIPE	
Front Room		Front Room	
No.		Diam.	
1		18	
2		254	
3		18	
4		254	
5		254	
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Chart Gives Heating Requirements As Determined by Application of the Standard Furnace Code

the plan when it is given to him.

In the second installation shown here, which is the home of K. B. Donnell, Rochester, New York, the installer, William H. Long, had an entirely different circumstance to meet. Here we have a 1-story bungalow of the Colonial type. The job was a Standard Code installation and was arranged as shown on the basement and floor plan. The measurements and Code calculations are shown on the fact sheet. Here again we see our cold air exceeding our warm air area by 83 inches. Cold airs are taken from the living room and center hall, both pipes being the same size. There are seven warm airs, the largest two being 12-inch and running to the living room and dining room, respectively. Note

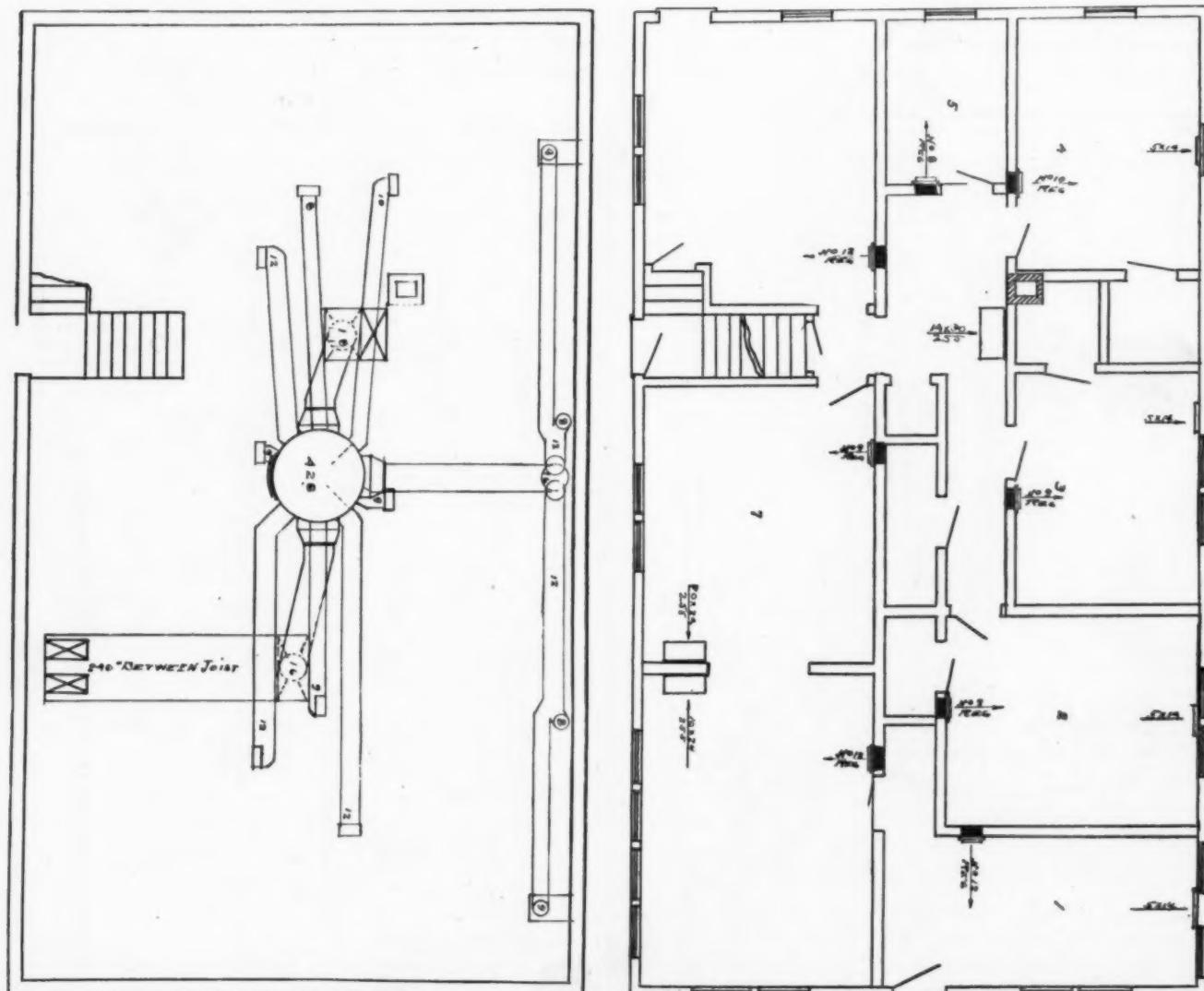


Figure 6—Peculiar Warm Air Furnace Layout, Showing Rather Unusual Cold Air Connection, But Nevertheless Figured According to the Standard Code

the shortness of warm air runs, and the fact that here again a central chimney has been used instead of the fireplace chimney.

Another unique installation is that of the H. G. Osborn residence, Savanna, Illinois. It should be noted here that it is not the idea to show unusual installations at all, but rather to teach furnace installers what can be done with the ordinary installation met with in every day work. The Osborn residence is a compact 8-room dwelling that is very well adapted to the gravity warm air heating system. Although there are two floors to be heated, no one of the runs is of the length ordinarily met with. And yet because of its extreme simplicity as to heating arrangement a great many furnace men would fall down if they were asked to submit a heating arrangement for this house. Note how the cold air is being drawn from two outside walls on different sides of the house.

This job is evidently a remodel job. Note the type of Out of Wall register used in two instances as shown in the enlarged detail to one side of the first floor plan. Here again the chimney passes through.

On the other hand, the William Leppel, Monroe, Michigan, residence, installed by the Acme Heating Company, Detroit, Michigan, presents an entirely different problem. Here we have ten rooms, including a den and a breakfast nook to heat. The job here is successfully accomplished with a Standard Code installation in which only one warm air run has any considerable length. That one run heats the breakfast nook and the den. In order to insure proper circulation in this one long run, a cold air return is strategically placed in the den.

There are four cold air faces in the system, the one in the dining room and the one in the den discharging into a common return duct. The other two cold air ducts drawing air from the other extreme side of the house, one face being in hall and the other in the living room.

This installation differs from some of the others in that the smoke

flue in the fireplace chimney is utilized, showing that this can be done successfully if properly gone about. Other details of this installation can be gained by reference to the basement, first and second floor plans.

A peculiar feature of the installation, plans of which are shown herewith, of the H. W. Kincaid residence, Morgantown, West Virginia, installed by Limerick & Kincaid, are the three cold airs, two of which are taken from outside walls, and the third being taken from the inner hall directly between the two bedroom registers, pulling air from the kitchen, the hall and the two bedrooms.

The remaining two cold airs are so placed as to return the air from the living room, the dining room and the music room. It should be noted that these two cold airs feed into 14-inch pipes which finally pour the air into a single 18-inch duct, a "Y" branch being employed with a gradual easy bend down into the bottom of the casing. The cold air totals 508 inches. The warm airs are comparatively long, but there are no abrupt bends, and the total area is 493. Here the cold air and warm air areas almost approximate one another, there being 15 inches more cold than warm air area.

In this case the fireplace smoke flue is used, but it is on the inner portion of the house.

And finally we have the unique arrangement installed by our old friend E. A. Freed, Moline, Illinois.

This installation shows still another arrangement that is working out to the satisfaction of the owners. Here we have four cold airs taken from the entire length of one wall; one taken from a more central portion of the room, while two others are pulling the air from the rooms No. 6 and 7 on the other side of the structure. The four cold airs, taken from the outside wall are dropped into a single cold air duct near the center of the wall and thence down to the furnace casing.

It will be noted here that the arrangement is so designed that there is a warm air and a cold air register in practically every room, the only

exception being rooms number 5 and 8, and the cold air is returned from these by means of the returns placed in the hall. This arrangement has been made because of the somewhat long runs to each room.

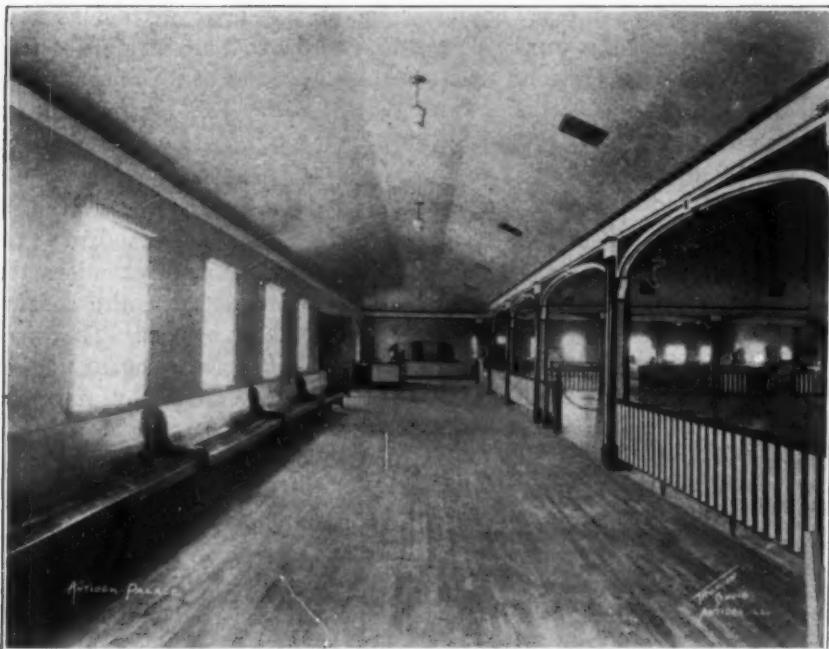
In these six plans are given six entirely different Standard Code warm air heating installations that are working to the entire satisfaction of their owners. They have been planned according to the best practice as evolved by warm air heating experts, and should give warm air furnace installers ample food for thought and study. They represent six of the common problems met with in ordinary practice. They are strictly gravity jobs, and have all been made with regard to the needs of the job and not entirely with regard for the specifications of the owner.

Installers 100 Per Cent Interested in Work of National Warm Air Heating Association

Statistics are said to prove a lot of things. Here is an instance of their showing that the National Warm Air Heating and Ventilating Association is overlooking a good bet on associate memberships. In the questionnaire which AMERICAN ARTISAN sent out to furnace dealers in all sections of the country this question was asked: "Do you believe in the work of the National Warm Air Heating and Ventilating Association?" "Are you an associate member of that organization?"

Now note the answers. Of those who returned the questionnaire, 92.92 per cent indicated that they are heartily in favor of the work that is being done, while 3.57 per cent respectively made no answer to the question or said they were not qualified to answer it.

To the second question 57.17 per cent or a little over half of the total said they are members of the association, while 32.16 per cent said they were not associate members, the remaining 10.71 per cent not answering the question. Practically 100 per cent are in favor of the work, yet only a little over 50 per cent of them are associate members.



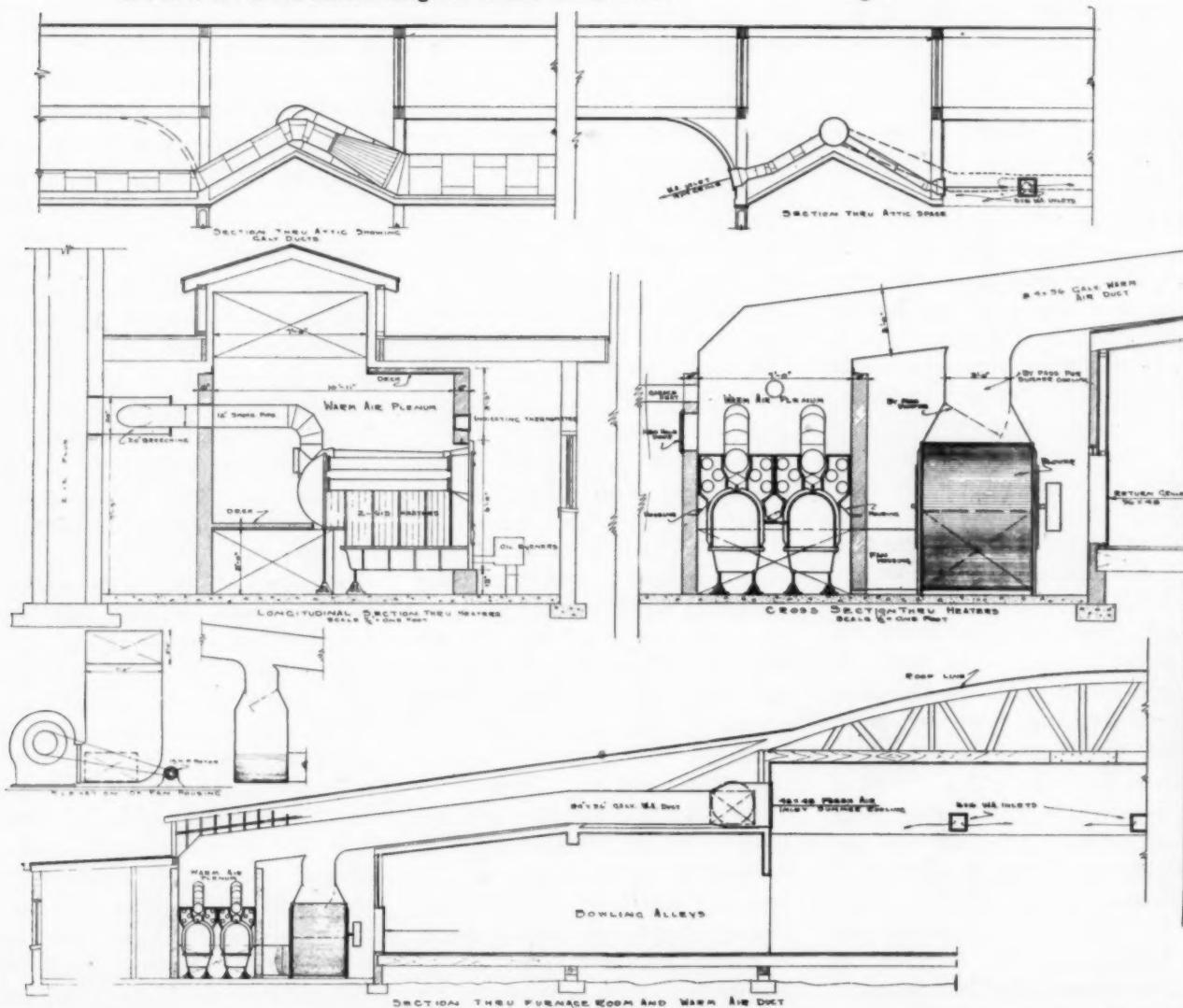
Interior of Dance Palace, Antioch, Illinois, Showing Method of Forcing Warm Air Into the Sides Surrounding the Actual Dance Floor

HEATING AND DANCE

By PLATTE

WARM air heating men heretofore have not been accustomed to think in terms of the heating requirements of the larger buildings, such as dance halls, garages and similar structures where the heating is confined to one large room. But it is evident that if the warm air heating industry is to take its proper place in the heating field, it must de-

*This article on the heating and cooling of a large dance hall was written especially for the 34th Warm Air Furnace Annual under the direction of Platte Overton, heating and ventilating engineer with the Herbert H. Davis Company, Inc., 4146 South Western Avenue, Chicago.



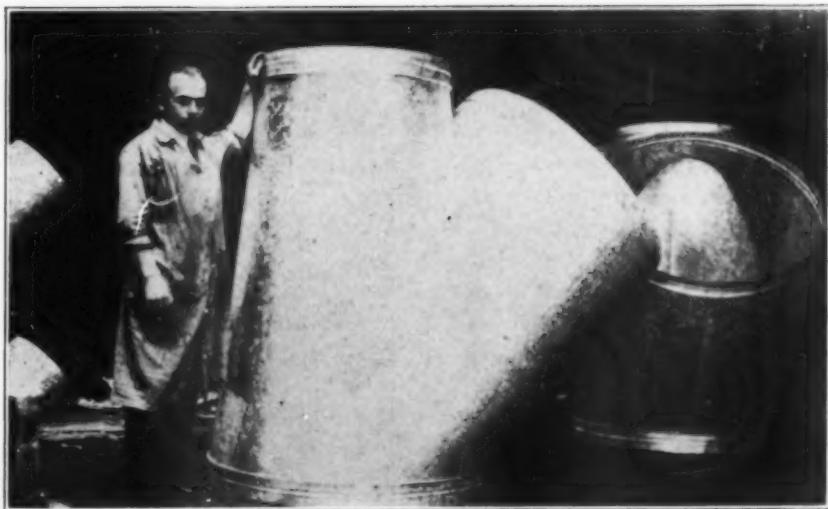
Plan Showing How the Air Is Taken from the Furnace Bonnets and Forced Through the Duct System and Out Onto the Dance Floor and Sleeping Quarters. The Heaters Are Also Shown.

COOLING LARGE HALL

OVERTON*

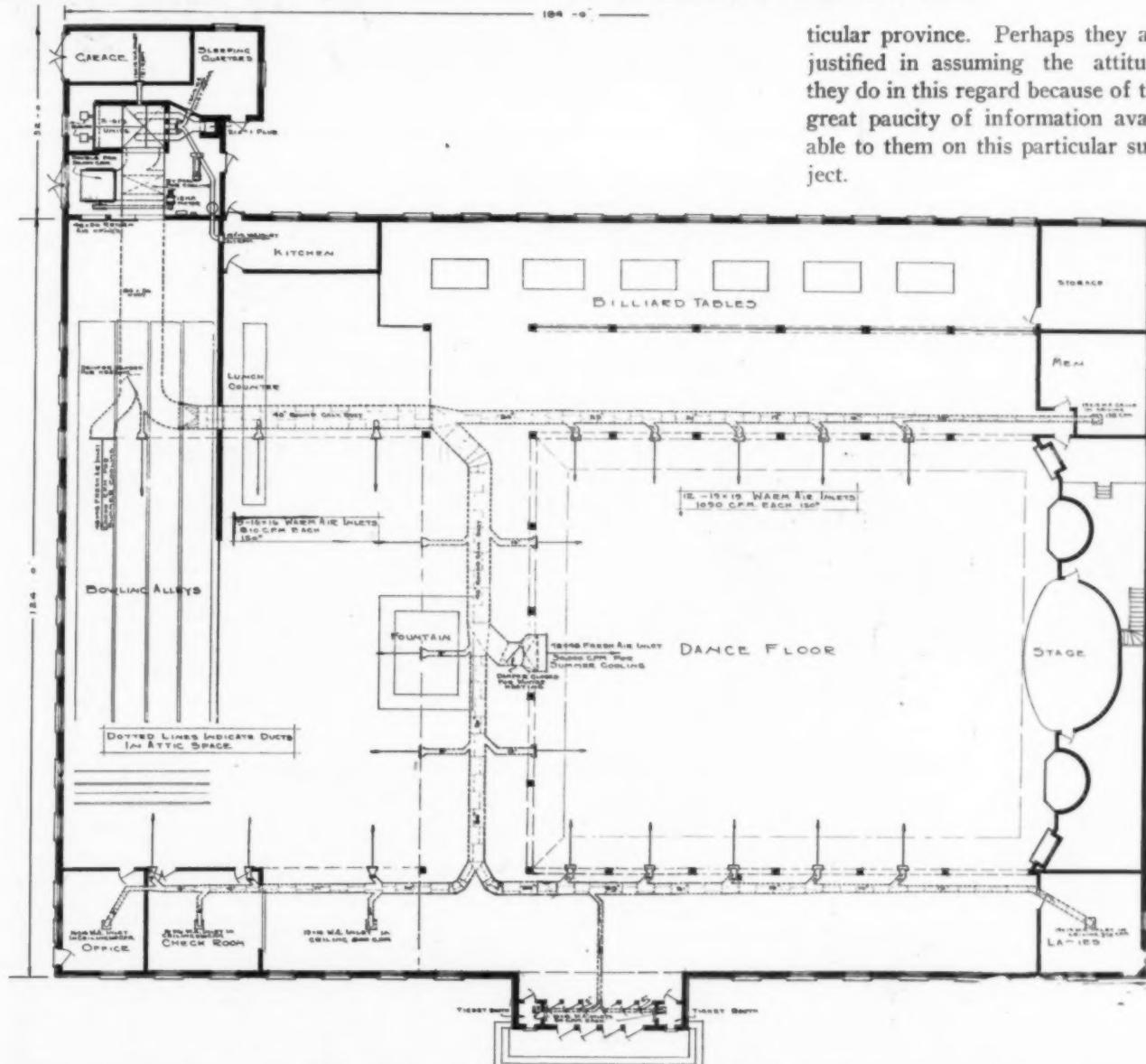
velop men who are capable of determining the heat requirements of such buildings and of engineering the systems into place so that they will do the work required of them in an efficient and dependable manner.

The general attitude of the warm air heating man heretofore has been to allow these bigger jobs to go to the competitive systems, for the simple reason that they felt that such jobs were entirely out of their par-



Some of the Fittings Going Into the Antioch Palace Heating Job. Some Idea of Their Size Can Be Gained by Comparing Them with Platte Overton Shown Standing Beside Them

ticular province. Perhaps they are justified in assuming the attitude they do in this regard because of the great paucity of information available to them on this particular subject.



Plan Showing Trunk Line System of Ducts and Offshoots Placed in Attic of Antioch, Illinois, Dance Palace and Theatre Heating Job. The Large Duct Shown in the Center Is Used for the Cooling of the Dance Floor in the Summer. It Discharges 30,000 C. F. M., and Is Equipped with a Damper Which Is Closed for Winter Heating

December 31, 1927

In order to give warm air heating men some definite, tangible data which they can turn over in their minds, with the idea of learning how to handle these larger jobs, and in order to show them some of the vast definite possibilities in the warm air heating field, I am presenting here a heating job that is not at all out of the ordinary run in its particular field, but it is a job which the ordinary furnace installer would not think of tackling himself for lack of special information. Surely if a man can calculate the heat losses from an ordinary residence and put in a furnace and a system of ducts that will make good those heat losses, he can do the same with a larger building, the only difference being that he is handling larger figures in the latter case.

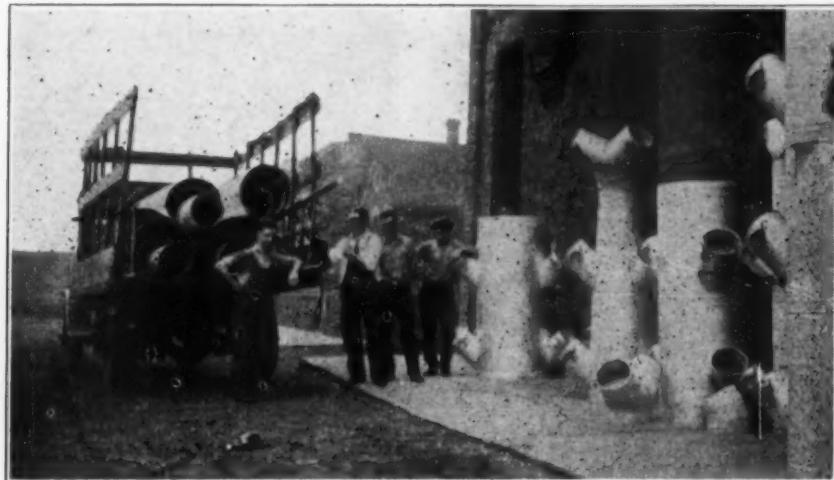
The accompanying illustrations are those of the Dance Palace, River Road, Antioch, Illinois, owned by Richard Macek and heated with a warm air system. The heating arrangement as shown is calculated to supply 70 degrees in the dance hall when the outside temperature is 10 degrees below zero.

It will be seen by referring to the

Heating and Ventilating Data Sheet, page 06, that the total recirculated air is 17,000 C. F. M. The system is designed so that the heating equipment can be employed for purposes of cooling the dance hall in

that there are no pipe lines filled with water to freeze up when the system is not in use.

A recent test showed a variation of only two degrees throughout the building.



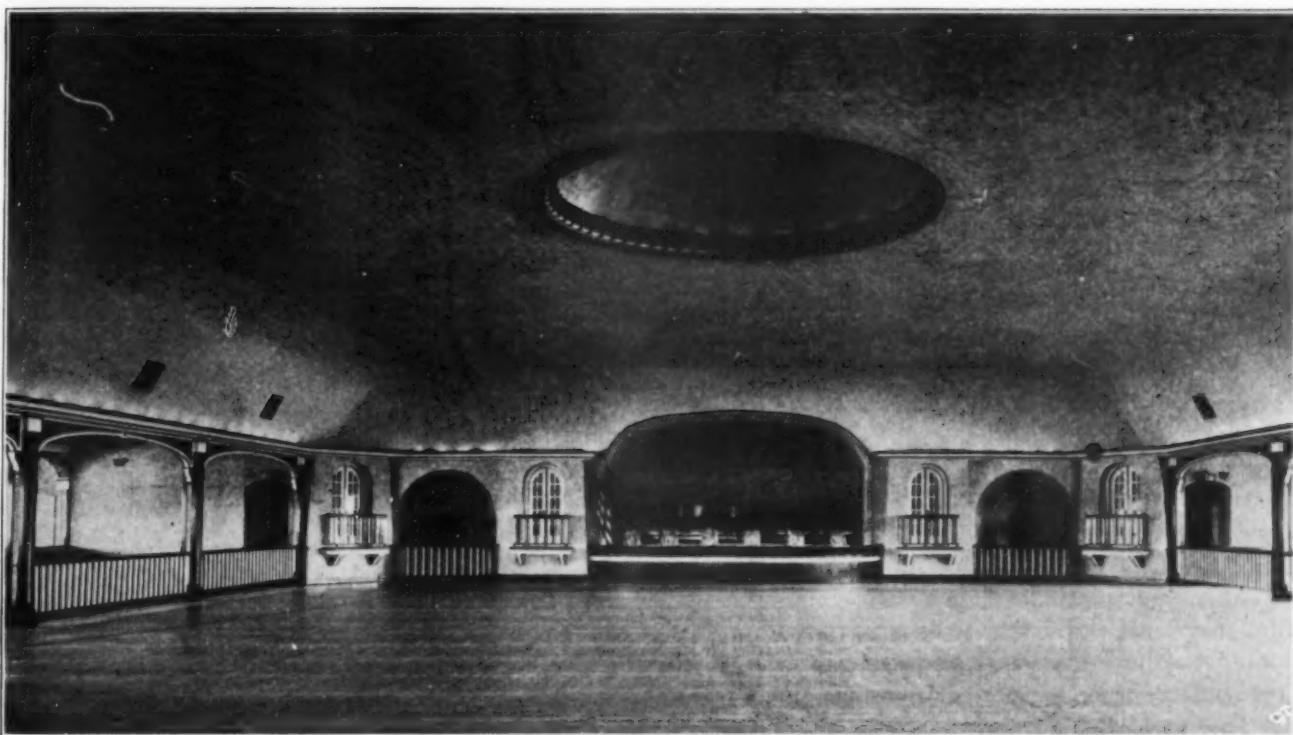
Truck Load of Fittings Going Into the Antioch Dance Palace Job and Some of the Employees Who Put the System In

the summer time as well as heating it in the winter, thus making the building available for use regardless of the season or weather. A still further advantage in this type of system over steam or hot water is

The cooling is provided by the "typhoon" system of a 6-minute air change. A large 72 by 48-inch grille discharges 30,000 C. F. M. directly on the dance floor. This grille is closed for winter heating and the

HEATING AND VENTILATING DATA SHEET No. 1															Plan No. 821
DANCE PALACE															Dimensions 6'12" x 11'7"
RIVER ROAD ANTIOCH, ILL. RICHARD MACEK, J. J. NOVY, HERBERT H. DAVIS CO., INC., CHICAGO, C.F.M. per Comp., 10,000 F.A.P. OUT SIDE, 100% RETURN, 10% ROOMS EXCEPT GARAGE, ONE CHANGE PER HR. LEAKAGE															Other Rooms and Corridors, Using 40°
I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
SLEEPING RM	1	130	1170	130	212	10 20%	130	130	9515	10' 12"	1	5'			
GARAGE	2	160	1490	151	190	50 10	160	160	7508	50' 12"	1	5'			
KITCHEN	3	200	1600	261	215	60 10	200	200	13320	10' 12"	1	5'			
OFFICE	4	210	2080	265	234	66 10	210	210	13266	10' 11"	130	5'			
CHECK ROOM	5	288	2880	230	150	40 10	288	288	11468	10' 11"	130	10'			
TICKET BOOTH	6	12	120	50	66	4 20	12	12	2550	10' 11"	1	6'			
TICKET BOOTH	7	12	120	50	66	4 20	12	12	2550	10' 11"	1	6'			
LADIES TOILET	8	212	2120	370	298	32 25	212	212	18504	10' 11"	2.5	12'			
MEN'S TOILET	9	289	2890	186	158	12 25	289	289	9256	10' 11"	2.5	12'			
MAIN FLOOR	10	18798	28130	18002	3129	800 20	18990	18198	0	90416	10' 12"	41	5'		
TOTAL	10	20311	28620	19841	4716	1108	20512	20311	992055						
ITEMS															
Size of Burner Plug	2 1/2	45' HIGH							Total Recirculated Air	17,000 C.F.M.					
Type of Furnace	NATIONAL	HORIZONTAL TUBULAR						Total Outside Fresh Air	30,000 C.F.M. FOR COOLING						
Number to be Used	2							Total C.F.M. of Air to be Recirculated	13,042 C.F.M. FOR HEATING						
Rating	10,300 C.F.M. EACH	50° TO 12°						Temp. of Air to be Recirculated	50°						
Close Area Back Porches								Heat Chamber Temperature	125°						
Total Radiating Surface	580	B						Required Heat Area							
Remarks								Size of Fresh Air Shells							
								Size of Return Air Shells							
									524						

Heating and Ventilating Engineering Data Sheet Giving Total Heating Requirement of the Antioch, Illinois Dance Palace and Theatre. Study It Over Carefully, It Will Help You in Your Work



Interior of Antioch Dance Palace Showing Full View of Dance Floor and the Grills in the Ceiling Through Which the Warm Air Is Forced During the Winter Heating Season. The Cold Air Grille Used for Summer Cooling Is Located Directly Opposite from the Stage, But Is Not Shown in the Illustration

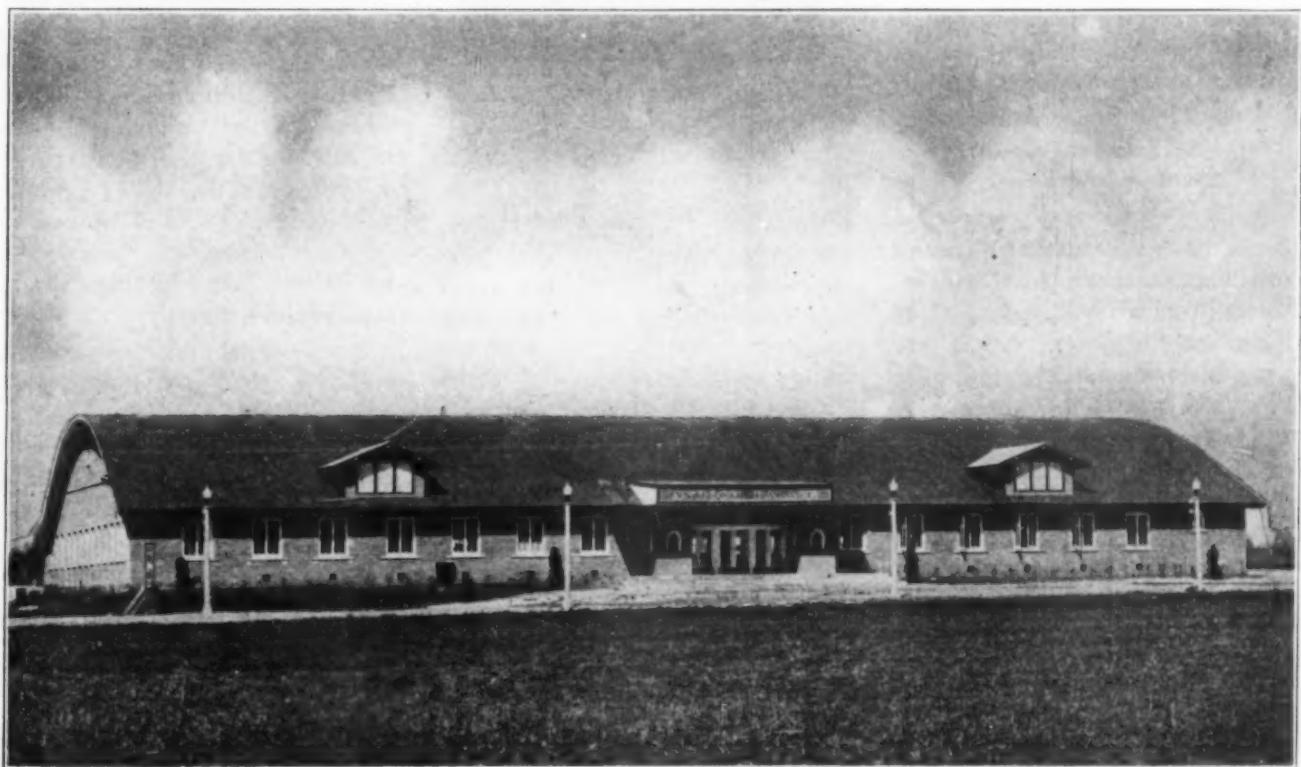
warm air is distributed through the numerous grilles in the ceiling shown in the illustrations of the interior of the building.

Complete engineering data of in-

terest and which the installer would like to study the system out for himself will be found on the data sheet as mentioned.

If there are any questions you

would like to ask after you have completed your study of this article, send them to the Editor and he will have them answered by Mr. Overton through later issues.



Exterior View of the Antioch Dance Palace, Giving the Reader Some Idea of the Size of the Heating Problem

Are Your Services Worth MOST as Mechanic or as Executive?

*Knowing Costs of Materials, Labor
and Overhead PRODUCES Profit*

By GEORGE HARMS*

TO write an article for AMERICAN ARTISAN furnace annual is a rather delicate proposition, as it is generally assumed that the writers are correctly informed on the subject they handle; and, therefore, the statements that are made will be accepted as authority.

If, then, I were to take a definite stand on the prohibition question, my statements might lead some to drink who heretofore were considered model men and women. If, on the other hand, I showed an inclination to favor the 18th Amendment, it might have a rather serious effect on the usually congenial meetings and conventions of the furnace industry.

Therefore, I rather hesitate to take an active part in the discussions that are going on about the proper manner of warm air heating, either by gravity or the forced air principle as my statements might have the effect of boosting the one method or destroying the other.

**Speaks for Strict Adherence
to Standard Code
Always**

I do not hesitate, however, to come out flat-footedly in favor of installing furnaces strictly in accordance with the Standard Code. This is not a theory. It has been demonstrated in actual practice that any furnace installed according to the Code will, without any question or doubt, make a satisfactory job; under those circumstances the consumer gets what he pays for, and the dealer makes the profit that he anticipated.

I want to dwell on the latter just

*This article on knowing your costs and the value of your services was written exclusively for AMERICAN ARTISAN 34th Warm Air Furnace Annual by George Harms, Secretary F. Meyer & Brother Company, Peoria, Illinois.

a little. I know there are many dealers who, even though they install according to the Standard Code, do not know how to make a profit on the work they undertake. This is only due to a lack of education. In my opinion it is up to the manufacturers of furnaces to see that their dealers receive education which will make merchants

ning and managing the business are worth very much more than they are as a mechanic. Adding these items, plus a fair margin of profit and taking into consideration all contingencies, my man receives prices very much above those of his competitors. Knowing his costs and knowing the customer is getting actual service, that is worth considering, he can demonstrate to the prospective customer that his prices are right, and the others even though much lower are wrong.

**Everyone Benefits by Men
of This Kind Being
in Business**

I know from actual experience that the above are facts. With dealers of this class, the manufacturer is assured of his money, as in the case of the man mentioned above, he discounts all his bills. Then, too, the consumer is absolutely assured of a heating plant that will satisfy him. I suppose there are thousands of dealers throughout the country who may ridicule my statements, saying that it can't be done; that they must meet competition, and because of this, they cannot make any money and in very many instances cannot even pay for their materials.

I hope what I mentioned in the beginning about the 18th Amendment will have the same effect on many of the dealers of the latter class, and believing that I know what I am writing about, that they will change their methods and become one of those merchants who knows how and does make a fair margin of profit on all that he does. If I were to make an offer to show any dealer how this can be done, I might be swamped with correspondence, but if there are any "doubting Thomases" just write me a letter.



George Harms

and business men of them rather than merely installers.

**Installer Knows What His
Services Are Worth
to Public**

I have in mind one dealer in a comparatively small city who receives anywhere from one hundred to three hundred dollars more for his furnace jobs than do his competitors. I have investigated this quite thoroughly and find that this man knows exactly what every item costs that enters into the installation. He also knows how much he must pay for labor to put in a high-class job.

In addition to this he is fully aware that the expense of conducting his business is quite heavy, also as an employer his services in plan-

Standard Code Jobs to Cause UNIVERSAL Acceptance of Warm Air Heating

Merchandising Will Also Play Equally as Important a Role

By CHARLES E. HALL*

WITH the passing of the year 1927 another chapter in the story of home heating has been written. What the year has been to the trade; what successes have been achieved, and what failures registered, makes very much less difference than what we will make of the new year which is ahead.

There are those who have come through with a feeling of pessimism. There are some who have done better than during any previous year of their experience. There are still others who have just about held their own.

Business Success Personal Affair, Largely, with Most Businesses

Such differences come almost entirely from personal causes and cannot be laid to the industry itself. Some men work harder and more intelligently. Some have more experience; others are more alert to the possibilities which the constant changes of business offer.

In spite of these differences, however, the fact remains that warm air heating is on a firmer basis today than at any other time in its long and interesting history.

Through the research of the National Warm Air Heating and Ventilating Association, we have accurate, scientific information on how best to heat a home. We know that warm air is the ideal system, not because we have been told so by manufacturers anxious to sell their goods, or by salesmen interested for selfish reasons.

We know it because nine years of scientific experimentation in a recognized laboratory under the

direction of competent engineers has proved it to be the case. We can point to the published records of that research as evidence of the fact and can convince the skeptical home owner that the one best way to heat his home is by warm air. He does not have to take our word for it. It is a matter of authoritative record.

Through the advertising and publicity activities of the National Warm Air Heating and Ventilating Association more and more people are coming to know these facts. The story is being placed before them in the pages of national magazines, in editorial stories of the newspapers and in various other ways.

Almost every day we hear of some new city or town that has adopted the Standard Code as an ordinance. Those who live in towns which have a Code ordinance know what it means to the industry as a whole and to the home owners in those towns. The list is already impressive, including some of the most important cities in the country. During the coming year it will, undoubtedly, be much enlarged so that gradually, in town by town and city by city home owners will be safeguarded against heating troubles and will be taught to know what proper home heating means through the better installation of warm air systems.

Standard Ordinance Spreading Over Entire Country

Manufacturers of warm air furnaces have profited by all of the work of the association. They have banded together, under the name of the association, for more concentrated effort along progressive lines and have shown that spirit of coöperation which must, eventually,

result in advancement for the industry.

All of this can mean only one thing—a safe future for the warm air heating business. As with any business it has had, and will continue to have, peaks and valleys during which there are times of depression and discouragement. But this in no way effects the upward trend over a period of years. It is going in the right direction.

Selling Becoming More and More Complex Year After Year

Whether or not this progress will be as fast as it should be will depend much upon the attitude of everyone in the industry. Especially is this true with dealers and installers who are out on the firing line and whose job it is not only to do the retail selling, but also the installation. Selling is becoming more difficult every year. This is because there are more commodities to be sold and more people who are selling them.

Code Jobs Make Warm Friends for Furnace Installers

For this reason the dealer not only of warm air furnaces, but of most other staple commodities will find himself under the necessity of concentrating his attention more on merchandising. Nothing is more important for him than to find how and where he can double his volume during the coming year and maintain his price. They must go hand in hand, for there is little profit in doubling volume when it must be had at the expense of price.

Fortunately, the matter of installation is less difficult. If a dealer will adhere strictly to the Standard Code, he need have no fear for the future if his merchan-

*Article written exclusively for the 34th Warm Air Furnace Special of AMERICAN ARTISAN by Charles E. Hall, President of the National Warm Air Heating and Ventilating Association.

dising policies are sound. The more Code jobs he puts in this year, the more friends he will create for warm air heating and the faster will the industry approach the point of universal acceptance where it should be. Through his installations and general business practice the dealer has it in his hands to delay progress in the industry or to hasten it.

More dealers recognize this fact

now than ever before. More have signed the Code pledge of the association than at any other time. More are realizing the advantages which connection with the association gives in the matter of merchandising. People are coming to know that the display of the orange and black triangle of the association means Standard Code work. There are more dealers today with the time in the history of our activities.

referred to should not occur.

All of this is encouraging and further strengthens the assurance that the industry is safe in the future. Whether progress next year will be more rapid than during this will depend upon the coöperation of manufacturer and dealer in a united plan of attack in which fair dealing, sound business policies, good merchandising and Standard Code work must be evenly balanced.

Faulty Chimneys, a PERPETUAL FUEL EXPENSE That Causes Dissatisfaction With Heating System*

YOUR subscriber's inquiry, "Why a poorly constructed flue will cause a furnace to use an excessive amount of fuel?" is full of interest. I am taking it for granted that the phrase, "poorly constructed," covers all of the things in connection with a chimney which affect its power to create "Draft." It may be well to define "draft" in connection with a furnace. Draft in a chimney is measurable by the difference in temperature between the warm gases in the chimney and which cause the gases to be lighter than an imaginary column of cold air of equal height.

We Should Know the Causes of Chimney Drafts

For example, the weight of a cubic foot of air at 62 degrees is approximately 0.0761 pound. The weight of a cubic foot of air at 500 degrees is 0.0414 pound. The difference in weight is, therefore, 0.0347 pound and a chimney 40 feet high would have a pressure exerted on its base of 40 times 0.0347, or 1.388 pounds per square foot of its cross-sectional area. This difference in pressure will cause the gases in the chimney to rise at a rapid rate. Cold air impelled by the

pressure of 1.388 pounds per square foot will pass into the chimney. For the present it is presumed that it can only pass into the chimney through the fire in the furnace. When air passes through a bed of burning coal a multitude of changes take place. Certain portions of the coal are converted into a number of gases which ignite at varying temperatures. When they are released as gas and are in contact with the right amount of air at the requisite temperature they ignite and in burning yield definite quantities of heat. If the draft of the chimney is not strong enough, or the area large enough to cause sufficient air to pass through the dense bed of coal a portion of the liberated gases will pass unburned out of the furnace by way of the chimney into the open air. It is obvious that the heat which the lost gas might have made is a loss of fuel.

Why Fuel Remains Only Partially Burned Even Though Ignited

Other portions of the coal do not gasify before burning, but unite directly with the oxygen in the air. If only half enough air is drawn into the furnace, the fuel will ignite, become a gas and give up heat; but the amount of heat created will only be about one-third as much as though the proper amount of air had been admitted. The loss of heat in both of these elements in

the coal is due to a lack of air to finish the combustion.

There are other sources of loss of fuel, but these two are definitely related to the chimney. If a well-constructed chimney is of proper size and height to create the draft necessary to pass the right amount of air through the coal, the fuel loss referred to should not occur.

If, however, the chimney is faulty in construction, even though properly designed, it will not "draw" the fuel. These faults are legion.

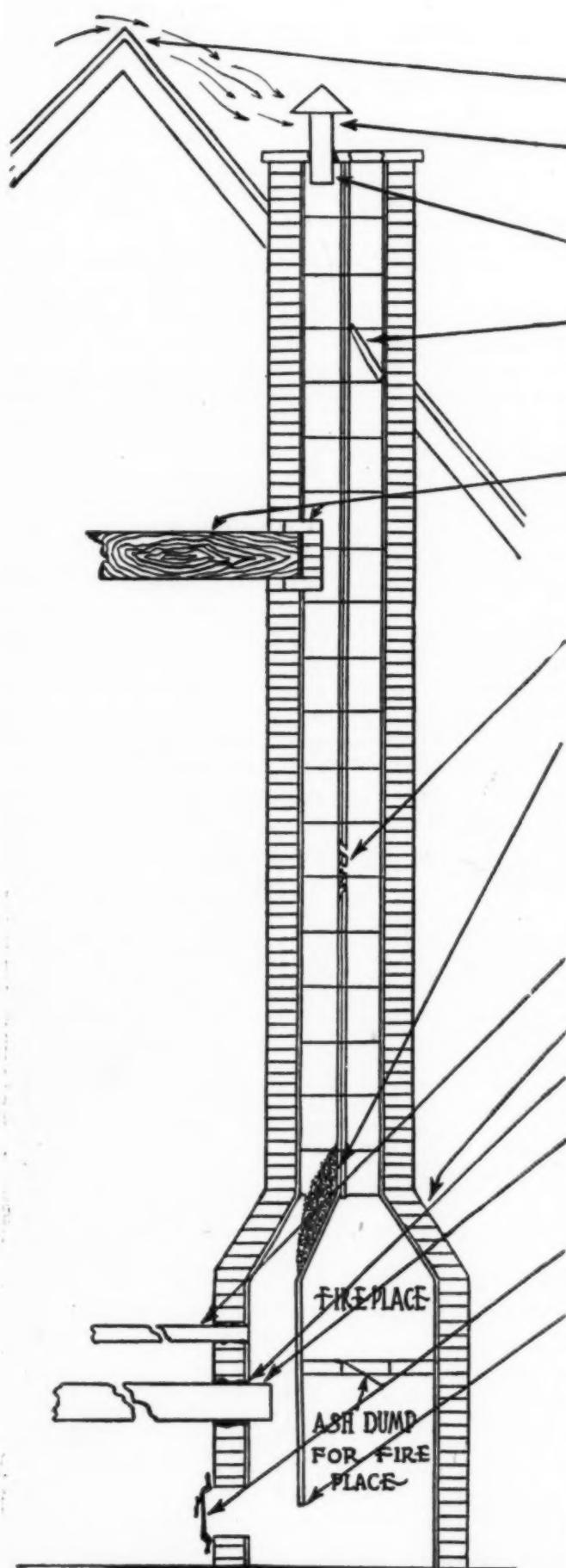
In my bunch of data gathered "by the way" I find a chart which shows graphically a few faults in chimney construction, also a few things not actually a part of the construction, but which, nevertheless, affect its ability to create draft. It also shows remedies for many of the faults. (See next page for chart.)

What Is Considered to Be a Faultily Constructed Chimney

This chart has been considerably mutilated and I am unable to give credit to the proper person. In addition to this chart I can refer you to valuable articles and illustrations in the AMERICAN ARTISAN, by L. W. Millis, March 31, 1923, April 7, 1923, April 14, 1923, May 12, 1923, June 2, 1923, June 21, 1924, and October 8, 1927.

If you have any questions on this subject that you would like to ask, don't fail to send them to the Editor of AMERICAN ARTISAN.

*This article on "Faulty Chimneys a Perpetual Fuel Expense" was written especially for the 34th Warm Air Furnace Special of AMERICAN ARTISAN by H. D. Ullon, seventh grade student in the Warm Air Study Club of the Security Stove & Manufacturing Company, Kansas City, Missouri.



Trouble	Disclosed by	Remedy
Top of Chimney Lower than surrounding objects	Observation	Extend chimney above all objects within 30 feet.
Chimney Cap or Ventilator.	Observation	Remove.
Coping restricts opening.	Measurement	Make opening as large as inside of chimney.
Piece of Broken Tile wedged in Chimney.	By lowering a light or a weight down chimney.	Break tile with a rod or weight on a string or wire.
Joist Protruding into Chimney.	By lowering a light or a weight down chimney.	Change support for joist so that chimney will be clear.
Leakage between loose-jointed tiles.	Smoke Test (Start smoking fire with top of chimney closed. Look for leakage from chimney)	Rebuild chimney with a course of brick between flue tiles.
Debris accumulated in offset.	By lowering a light or a weight down chimney.	Break out with rod or weight. May be necessary to open chimney.
Heater or Ventilator connection.	Observation	Remove.
Offset.	By lowering a light or a weight down chimney.	Change to straight or to long offset.
Loosely fitted smoke pipe.	Smoke Test	Close leaks with cement.
Smoke pipe extends into chimney.	By lowering a light or a weight down chimney.	Make end flush with inside of chimney.
Loosely fitted cleanout door.	Smoke Test	Close leaks with cement.
Opening between flues.	Smoke Test	Close openings permanently.
Chimney too small.	Measurement	Rebuild.
Chimney too large.	Measurement	Rebuild.
Chimney too short.	Measurement	Extend.

HERE'S HOW Furnace Installer Can Get Out of Highly Competitive Sales Class

Some Lessons on Installation Practice With Trunk Line System

By R. W. MENK*

WELL, here we are again. It's time for another annual issue of the old reliable AMERICAN ARTISAN. Well, folks, how much have you gotten out of it this past year? How many times have you had occasion to refer to it? How much has it helped you in your business? That is always a question that comes to mind when the Editor writes a letter and says he is expecting something from me for the annual. It reminds me of one of the Christmas cards I received. It says, "It's an old chestnut, but it's time to crack another, so here it is—

*This article on the use of the Heat-O booster was written especially for the 34th Warm Air Furnace Annual of AMERICAN ARTISAN by R. W. Menk of the Heating Systems Division of the Robinson Furnace Company, Chicago.

Merry Xmas and a Happy New Year."

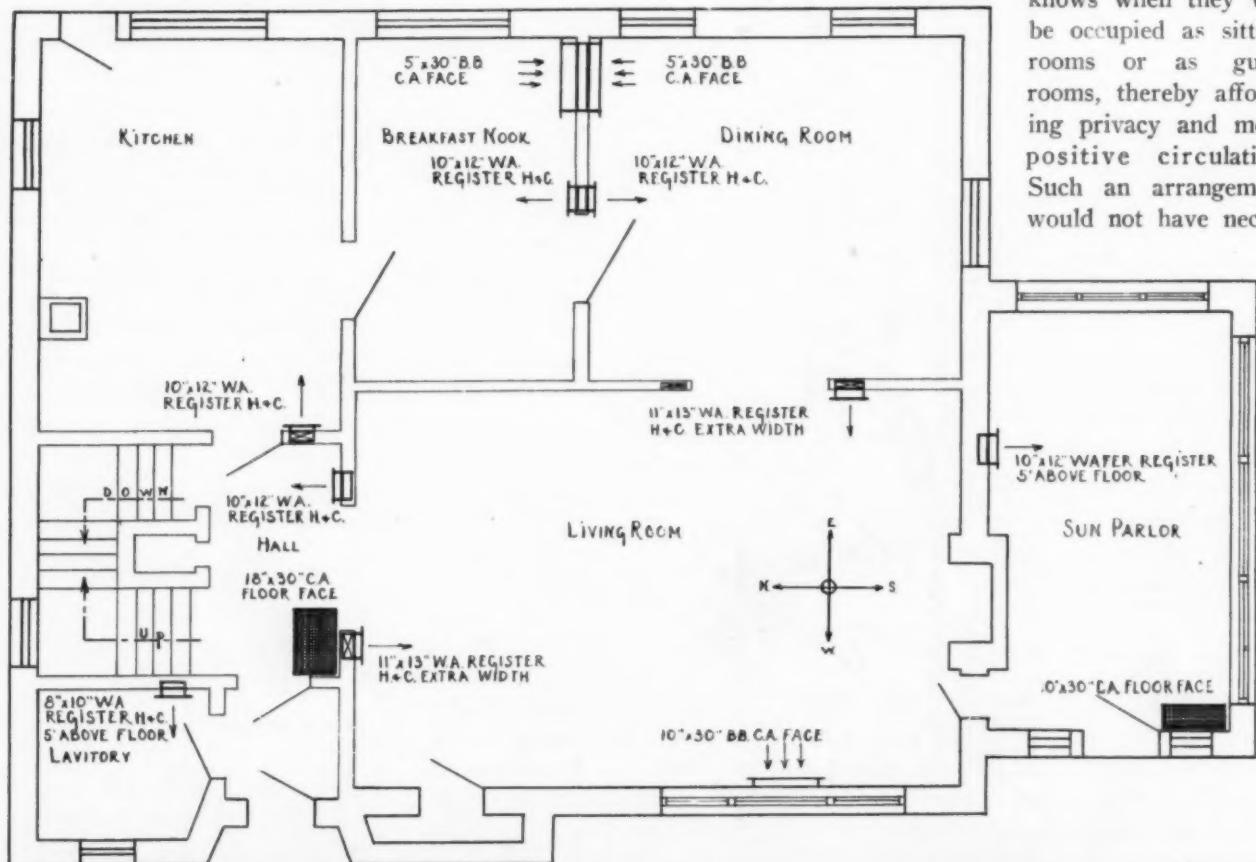
This is the way I answered him: "Come on over and see what we have done this year and judge for yourself what we should submit." He comes, and here is what happens. After looking over dozen of plans of schools, churches, garages and residences, etc., a residence is decided upon—a residence just a little above the average—just on the line where competition between warm air and radiator heat are having their battle. A job that tests the ability of the installer. Look it over. Pick it to pieces. Mill it over at your leisure. Ask yourself how much you should get for a job like it, and then tell the editor what you think of it. It doesn't make any differ-

ence what you think, but tell him.

The accompanying floor plans cover a home in one of our neighboring states. The job was sold and installed by a firm for whom we have very much respect, for they are sold on warm air heating, do the best work they possibly can, and get profits that warrant their efforts. The layout was made to conform to the location of the building, its surroundings and exposure.

Each room has a warm air supply. Cold air returns were located to afford the best circulation conditions. In this instance the rooms on second floor were vented into the attic, because they are used for sleeping purposes only. We prefer to return the air from second floor under ordinary conditions, as one never

knows when they will be occupied as sitting rooms or as guest rooms, thereby affording privacy and more positive circulation. Such an arrangement would not have neces-



First Floor Plan, Showing Location of Warm Air Registers and Cold Air Returns

sitated quite as large a cold air return in the hall.

The basement layout is always an interesting feature of the job and I feel sure that you will find this one especially so, because it demonstrates progress in the way of improvement and design in system that will gain further favor from the public. It also requires mechanical ability that will naturally raise the standard of warm air heating from the hammer and snips level. Over 25 per cent of all layouts made by our engineering department this year were trunk line systems, again indicating the general trend in that direction.

Systems of this character, of course, must have some mechanical means to start circulation and in this instance it is a No. 55 Style A Heat-O Booster. It is not practical to make this kind of an installation unless one has had experience along this line, for there are so many con-

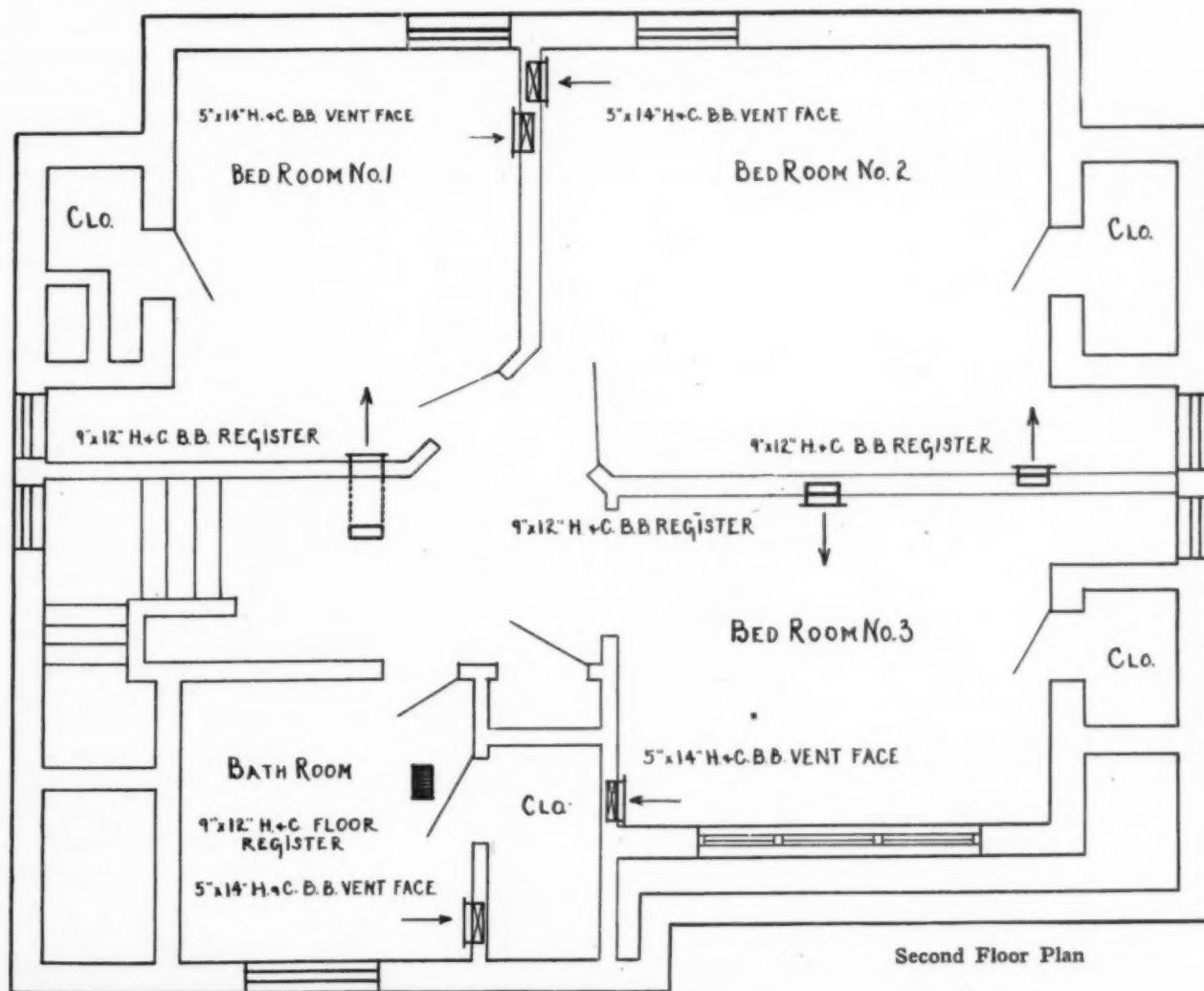
ditions that enter into the distribution "that require familiarity" that it is advisable to consult people who make a specialty of same, until a knowledge has been gained that will assure success. In this instance it will be noted that all returns in basement are carried to the furnace under ground. This necessitates the suction pipe from the booster to be carried underground also, in order to avoid the piping destroying the head room.

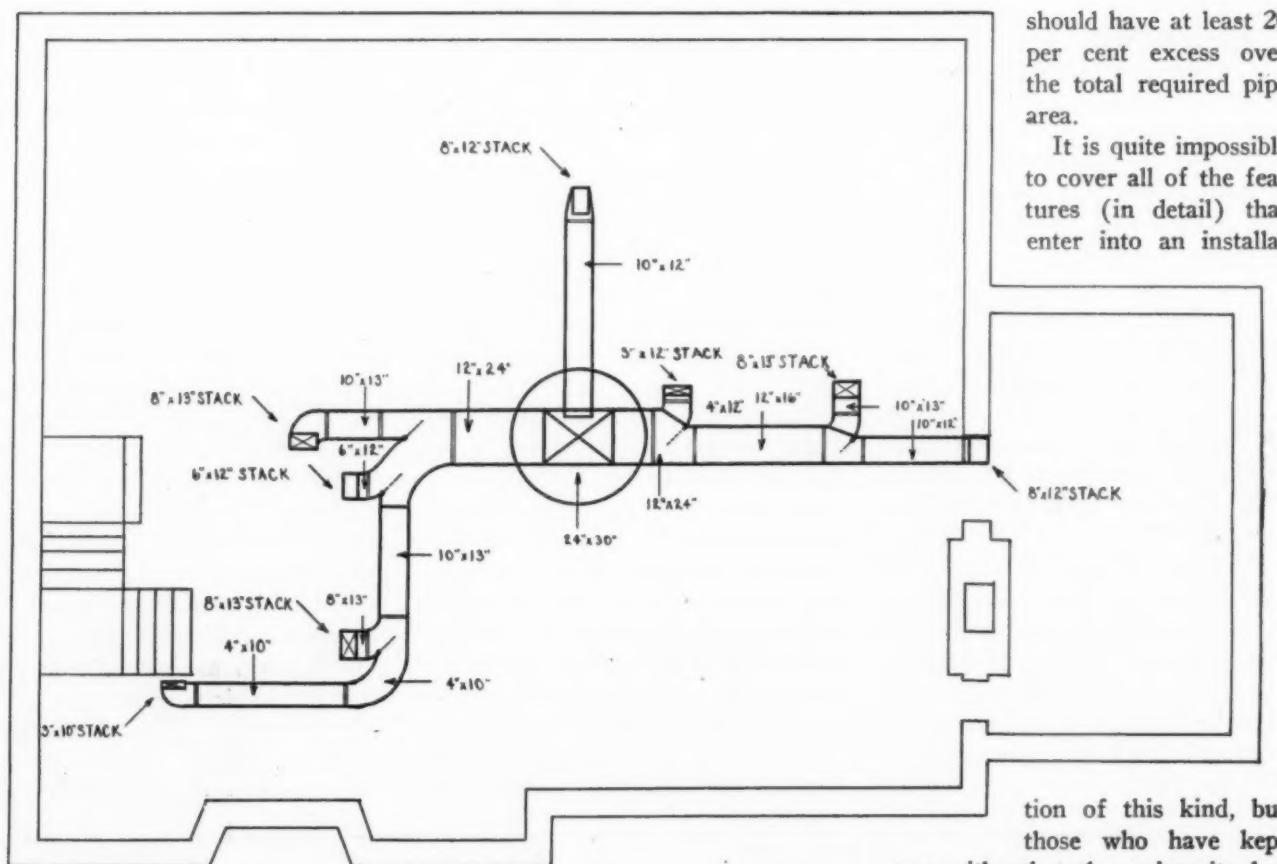
It will be further noted that all of the air supply for the booster is, in this instance, taken from the hall return. This was done because the other returns were not large enough to necessitate added air flow, for the siphonic action of the booster nozzle will assure an increased flow when booster is in operation. There is, of course, nothing especially complicated about a booster application. It is only a question of where to take the bulk of the air, in order to

obtain the best and most uniform results.

One especially good feature about a trunk line system is the quick results that are gotten from the most distant rooms, because the air pressure in the ducts is equalized when the booster is turned on and naturally the warm air will fill up the trunk line first. Then, when all pipes are up to temperature and dampers are adjusted, the air will continue to flow with booster turned off until the air temperature drops to a point where the resistance of the air against the warm air register is enough to stop the air flow, or it will continue to flow as indicated, unless the exposure of the basement pipe is such as quickly to cool off the same, in which case the air will stop flowing, as it would in any other warm air pipe.

In a system of this kind, the main trunk lines can be reduced 30 per cent, because of a lesser friction





over several pipes of smaller dimensions, but in no case should the

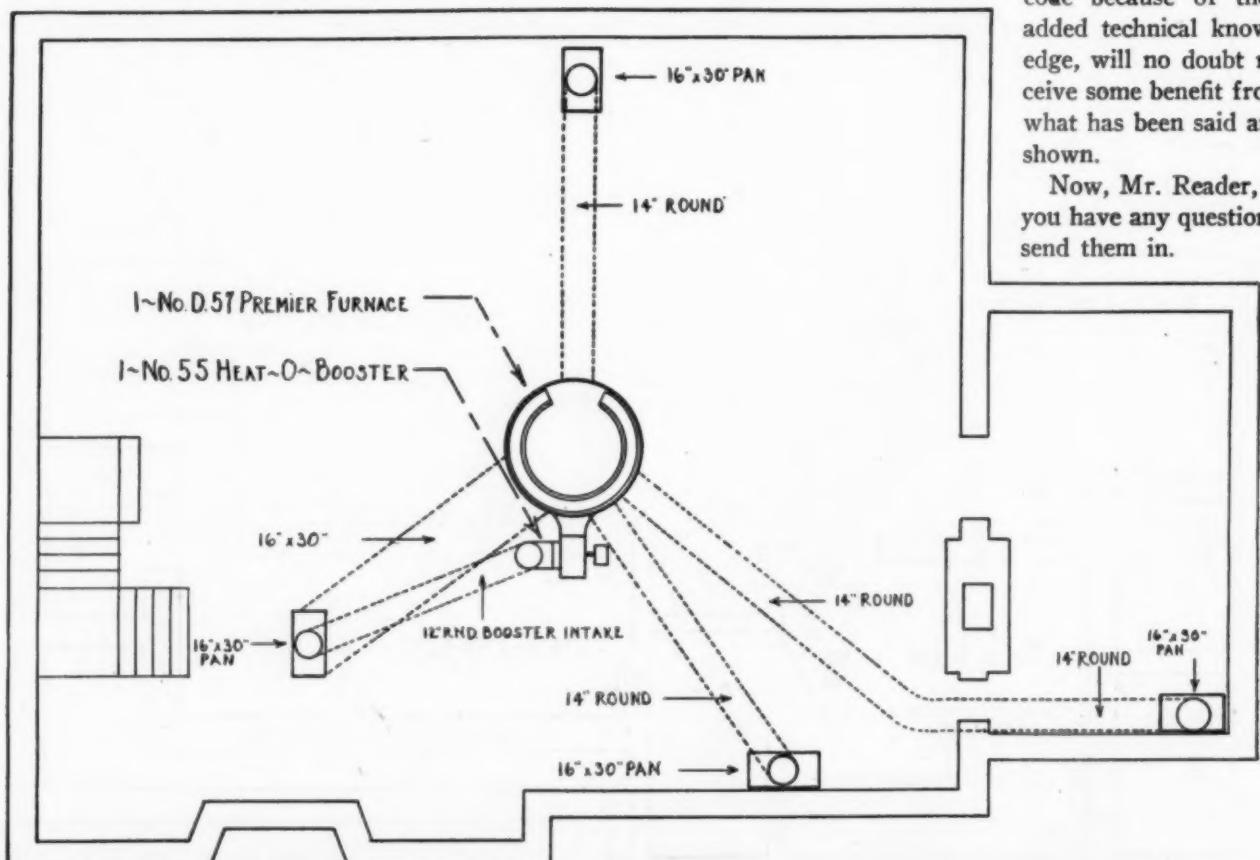
branch areas be less than those required by the code. The cold air

should have at least 20 per cent excess over the total required pipe area.

It is quite impossible to cover all of the features (in detail) that enter into an installa-

tion of this kind, but those who have kept pace with what the university has done—those who have thoroughly familiarized themselves with the code because of their added technical knowledge, will no doubt receive some benefit from what has been said and shown.

Now, Mr. Reader, if you have any questions, send them in.



Above—Basement Plan Showing Warm Air Layout. Below—Basement Plan Showing Cold Air Return Layout

How Standard Code IS RESTORING Public Confidence in Warm Air Heating

*Every Well Satisfied Customer a Walking
Powerful Advertisement for Warm Air Industry*

By L. W. MILLIS*

TWENTY or thirty years ago many warm air furnaces were installed by dealers who made a specialty of warm air heating and sold direct to the user. Much of the work was done by rule of thumb. Evidently the thumb was large, as reasonably good results were obtained. Then came the real estate development. The interest of the user and of the buyer were not identical. Men with no knowledge of heating problems procured snips, and after getting credit for a little asbestos paper, went into the furnace business. They may have had some difficulty in getting credit for the asbestos, but so far as I know they had no difficulty in getting credit for furnaces.

How Industry Came Under the Ban

The builder was not slow in turning this situation to his temporary advantage. Competent furnace men were told by builders to waste no time talking quality. A common remark was, "Tell me your price and the finish on the registers, that's all I want to know." No industry, other than the warm air furnace, could have outlived such a condition. It is a fact, unfortunate perhaps, that any old kind of furnace, even badly installed, will give some measure of satisfaction. This fact has kept the furnace industry from being wiped out. The result was an actual increase in numbers of furnaces sold, but in many localities furnace heating fell into disrepute. Even in the best practice of that day reliable installation data was lacking so that the dealer who wanted

to do good work had very little authoritative data by which to be guided.

Far seeing manufacturers saw the drawbacks and patient, courageous men started hunting remedies. In due time the Standard Code was perfected and thus a foundation was laid for correction of most of the abuses. The Code has, for several years, been given wide publicity among furnace dealers and it would certainly seem that there should have been a progressive movement toward its use by installation dealers. It would appear that this should have been automatic. But when we consider how difficult it is to get any of us to change our habits the manufacturer should not be discouraged, because many still disregard the Code. Many dealers have enthusiastically adopted it. Others admit its value, but insist that competition does not permit them to use it. While, unfortunately, others ignore the opportunity altogether.

Public Now in Receptive Mood on Code Work

In spite of the latter two classes of installers the average quality of installation has risen until it is probably that, even now, the average is about equal to the installations of the days prior to the "Jerry Built" house. If municipal building codes in general provided for proper heating plants, the way to enlarged usefulness would be plain. But this will be a matter of slow growth. Therefore additional methods must be used to spread the good news:

A considerable program of National advertising of warm air heat (and the Standard Code) has resulted in many inquiries from users. Wholesale dealers in furnaces and accessories report that they are often asked to recommend a dealer

competent to give them Standard Code work. All these inquiries indicate that the public is taking notice, and is in a receptive mood.

Such advertising is beneficial if the industry is sufficiently organized to deliver its allurements. Every furnace rightly installed is true advertising.

The furnace manufacturers and allied accessory interests have acted wisely, vigorously and harmoniously. Nevertheless the future of the industry does not rest with them. Strange as it may seem it rests with the dealer. He alone can transpose the allurements of the advertiser into reality in the prospect's home. The difficulties his calling presents he must overcome. Neither the manufacturer nor the user will, or can solve his problems. He must of necessity seek and use every avenue leading to an intelligent understanding of the Code, in order to successfully use it in its many, many, applications or variations, such as homes, stores, churches, schools, garages, or warehouses. As he acquires this foundation he should in some manner acquaint, or at least coöperate with others in acquainting his public with all that he knows. In this manner he invites the closest scrutiny of his heating plants by his customers. There is in every town a "best" hardware man, a "best" butcher, a "best" groceryman. In every case the better informed their customers are concerning their goods the more certain the "best" merchant is of his ability to please them. This rule is universal. The furnace man is no exception. Every satisfied customer is an asset, but every well informed, satisfied customer is not only an asset but is also a powerful walking advertisement of the very best heating system in the world.

*This article on the way in which the Standard Code is restoring public confidence in warm air heating was written by L. W. Millis, Secretary of the Security Stove & Manufacturing Company, Kansas City, Missouri, especially for AMERICAN ARTISAN 34th Warm Air Furnace Special.

Do You Know WHEN You Are ENTITLED TO FILE a Mechanic's Lien?

Mechanic's Lien Law Not an AUTOMATIC COLLECTION AGENCY

L. H. DUNTEM, Attorney and Counsellor at Law*

IN any discussion of a legal question for use other than by lawyers, it is well to bear in mind at the outset that it is very difficult even for the lawyer to apply the law to a specific set of facts and it is impossible for anyone to write a general article on such a subject as that of mechanics' liens which will in any way take the place of competent legal advice when specific instances are presented.

All the writer is attempting to do in this discussion is to point out some of the important features of the Indiana Lien Law and to make certain suggestions as to the conduct of the furnace and sheet metal contractor as he goes along, in order that he may not find after he has furnished his material and performed his labor, that his right to a mechanics' lien upon which he has been relying to force collection of his money, is nothing but a delusion and a snare.

Investigate First Rather Than After It's Too Late

I will make no attempt to discuss the lien law, except as it effects the furnace and sheet metal contractor.

In Indiana, the term "mechanic's lien" is used as a general term to designate the lien of contractors, sub-contractors, laborers and material men performing labor and furnishing material for the erection or repair of houses or other buildings.

In Indiana a mechanic's lien is purely a creature of the legislature and its purpose is to protect persons who have contributed labor or material to the construction, improvement or repair of a building or other structure thereby enhancing the value of the real estate. There are, however, so many different angles to be considered, that it is well for one to be upon his guard at the out-

set rather than to attempt to twist the circumstances and facts so as to come under the law after the work has been done and the material furnished.

As mechanic's lien laws are creatures of statute, they are strictly

What Mr. Dunten has said in this article applies to the ordinary situations arising in the state of Indiana. Each state's laws with regard to mechanic's liens differ from those of other states, but what Mr. Dunten has endeavored to do for warm air furnace men is to point out some of the pitfalls into which they can tumble if they are not wary.

For information of the readers of AMERICAN ARTISAN, L. H. Dunten is Attorney and Counsellor at Law, Fort Wayne, Indiana. He is a graduate of the Literary and Law Departments of the University of Michigan, having received his AB degree in 1914 and his LL. B. degree in 1916. Since 1916 Mr. Dunten has been practicing law in the city of Fort Wayne, Indiana, with the exception of one year which he spent with the colors.

construed in ascertaining who are within the provisions of the statute. There is no doubt, however, that anyone furnishing a heating plant or doing sheet metal work necessary for the construction or repair of a dwelling house has a right to a lien under our statute.

In as much as you are usually sub-contractors, it becomes encum-

berant upon you at the outset to find out what the contract is between the owner and the principal contractor. Without some contract between the owner and the principal contractor, you are not entitled to a lien, because our courts have held that there must be some contractual relationship between the owner and the contractor. If, however, you find that the principal contractor has a contract, either written or oral, with the owner, by which he is authorized to do the work, then it becomes important for you to determine whether or not that contract, if written, contains a clause or stipulation against mechanics' liens.

How You Are Charged with Constructive Notice of Contract

Contracts against mechanics' liens, if written, acknowledged as provided in the case of deeds, and filed and recorded in the recorder's office of the county in which the real estate is situated not more than five days after the execution of such contract, are valid and binding and your lien will be of no avail as against such a contract and the fact that it is recorded charges you with constructive notice of its existence and deprives you of the excuse of saying that you did not know there was such a contract. You are bound to know of the contract and are bound by its terms.

After satisfying yourself as to the contractual relationship between the owner of the real estate and the principal contractor, your next inquiry should be with reference to the title of the real estate. If the man who purports to be the owner and who is having the work done, is the owner, then you are all right. However, that is so seldom the case that a discussion of other possible circumstances is important.

If the property is in the name of husband and wife and either one of them authorizes the work and makes the principal contract, then you will have a right to a mechanic's lien. If the property is in the name of the husband alone, your right to a mechanic's lien is subject to the inchoate interest of his wife in such real estate.

If, however, it is a tenant in possession of the property who is making the improvements, your lien is only good to the extent of the tenant's interest in the property, and you must take notice of the rights of persons in possession of land upon which you perform labor and furnish material; and if the property is in the possession of a purchaser under a real estate contract, your lien is not good as against the owner of the real estate, but is good as against the purchaser under the contract up to the extent of his interest in the real estate. Our courts have held that in order that a lien can be obtained for repairs, the same must be ordered by the owner or he must be connected with the contract therefor. Our courts have also held that a mechanic's lien cannot be acquired upon the property of minors.

What Effect Have Existing Mortgages Against Property on Your Lien?

After you have ascertained who the owner of the property is, then the next problem that presents itself is the effect upon your lien of any mortgages that may be upon the property or may be afterwards placed upon the property. There is a special statute in Indiana which provides that where the owner has only a leasehold interest or the real estate is encumbered by a mortgage which has been placed upon the real estate itself prior to the erection of a building, that your lien is not impaired by forfeiture of the lease or foreclosure of the mortgage, but that the building may be sold to satisfy the lien and be removed within ninety days after the sale by the purchaser.

Our courts have also held and our statutes provide that liens do

not have priority in the order of time in which they are filed but that all lien-holders holding a lien for work done or materials furnished in the construction of a building have equal priorities; our courts have also held that where a construction mortgage is placed upon the real estate and the money goes into the erection and construction of the building thereon, that the holder of the construction mortgage is of equal priority under the law with the holders of the mechanic's liens.

Notice of Lien Must Be Filed in Recorder's Office of County

It is also important to remember that to acquire a lien for materials, you must show that the materials were furnished for and actually used in the construction of the building.

It is also important to remember that in claiming your lien you must file a notice of your intention to hold a lien in the recorder's office in the county in which the real estate is situated, within sixty days from the time the last work is done or the materials furnished. This notice must set forth the amount claimed by you and give a substantial description of the real estate, so that from such description the real estate can be identified.

You need not in filing this notice, file and itemized statement of your claim, but you should state whether or not your claim is due and the time within which you must file your notice starts to run with the performance of the last work upon the job. This, however, is subject to certain qualifications. It is commonly believed by mechanics and material men, that if after there has been a substantial performance of the work, they afterwards of their own volition do some small item of work or furnish some small piece of material, that they are entitled to a mechanic's lien within sixty days from the time of doing that small piece of work.

That, however, is not always true. Our courts have held that this extra work must be done at the request of the owner and for the purpose of repairing some defect in the

original job and that without a request on the part of the owner, that your right to a lien does not attach.

If, however, you have completed a heating job and have made your charge which is not paid and you fail to file a lien within sixty days from time of doing your last work and the owner discovers that some pipe needs connecting or slight changing and he calls you and tells you to do that work, and you do the work and do not make a charge for that extra work, still you are entitled to a mechanic's lien for the amount of the entire job.

After your lien has been recorded in the Recorder's Office, your duty with reference to it is not completed. You still have to enforce that lien by suit if that becomes necessary to collect your money, and this suit must be commenced within one year from the time your notice was received for record by the County Recorder and in bringing this suit it should be remembered that any person claiming any interest in the real estate who is not made a party to the suit is not affected by the litigation.

Intention Has Been to Show Obligation of Material Man

It is the hope of the writer that he has in this article set out enough to demonstrate to the material man that there are some obligations upon him before he can have a valid mechanic's lien. *Too many contractors are prone to blaze away without any regard to the situation of the owner of the real estate and without any investigation of the facts, feeling sure in their own mind that if they are not paid that all they have to do is to file a mechanic's lien and be assured of their money.* That is not true. The Mechanic's Lien Law is not an automatic collection agency which collects for you that which is rightfully yours and where the amounts involved are large and the question of conflicting priorities come up between mortgage holders and lien holders, someone is very liable to find that they are in a position where they must bid the property in at execution sale.

Forced Warm Air Heating HAS DEFINITE PLACE in Warm Air Industry

By J. C. MILES*

THE warm air furnace is the most universally used source of heat, but its field has been limited to the smaller and less expensive type of building for the reason that we have heretofore been entirely dependent on gravity circulation of air as a heating medium, and where the pipes are 12 or 15 feet long or with little elevation we either avoid the job or else we contract for a lot of grief.

We are all aware of the fact that the furnace manufacturers, through the National Warm Air Heating & Ventilating Association, in conjunction with the University of Illinois, have spent large sums of money and eight or ten years of painstaking effort to accumulate scientific data relative to the warm air furnace as a heating source, and now that we have this data, it is up to the industry to put it to good use. The information they have gained regarding gravity systems and the Standard Code are highly beneficial and should, by all means, be used. But, thanks to the work at Urbana, the warm air furnace embraces a much wider field than is possible through gravity circulation. Through the experimental work at Urbana the advantages and reliability in forced air heating have proved a boon to the furnace industry, and if we will fit ourselves for forced air heating we will broaden our field and expand our volume of business.

Installer Rides for Fall in Many Jobs

We, of course, know that when we get into the larger type of buildings, such as schools, churches, lodge rooms, assembly halls, or commercial work, such as factories, shops

or garages, we are not only inviting trouble, but we are oftentimes doing an injustice to the owner if we hazard the heating service to strictly gravity circulation. We know that there are residence jobs which we would be better off if we did not try to heat. For instance, where the chimney is off to one side of the house and where the furnace must be set. This is a case where the housewife says, "I just will not have my basement spoiled by a furnace set right in the center. The furnace will have to go over here or nowhere." This means that at least one pipe is 12 or 15 feet long. Then the housewife wants plenty of head room, which means little or no elevation in the warm air pipes. This kind of a job comes up several times in a season and sometimes we turn it down (which is wise) or else we take the job fully aware of all its hazards.

Steam Fitter Can No Longer Sneer at Warm Air

Now what we should do and what the better furnace men are urging on us to do is: wherever there is a doubtful job like this, don't turn it down or try to fool ourselves into thinking it will work, but rather make up our minds that this job is well within the scope of the warm air furnace, in perfect safety with forced air circulation, and on this basis proceed to work out the right kind of a fan and design.

In this way we are going to remove the furnace job from our record which is causing the most of the furnace heating troubles. Once this canker is removed, our stock will go up and we will easily mount on a higher level. The steamfitter and plumber sneers at us now, saying that our system is cheap and a makeshift—not so much now as he did before the work at Urbana, but even now he will sneer at us if he thinks he can get away with it; and to sneer or ridicule, as we all know,

is the most effective method of opposition in any line of endeavor. The reason he can sneer or ridicule is because of none other than that doubtful job that the furnace man takes rather than turn it down. That job gives the steam man grounds and courage.

College Text Books Favor Warm Air

Now, here is the solution. Suppose we resolve not to argue with the housewife about where the furnace is going to be set, nor to argue with the architect where he puts his chimney, but let them have their way, and if this plan works out with a pipe longer than 12 feet, or if there is a pipe with more than three right angle turns in it, insist that the job absolutely needs a fan. Then design and install the right kind of a fan for the service with the proper care as to the pipe arrangement.

We are urging this program on the installer, because it is a national movement for the betterment of the industry in general, and if we can get the support of the installer we are going to better the industry more than the trade is able to appreciate at this time.

The argument is all on our side. All of the college text books sustain us when we say that warm air heat is the most healthful, comfortable and satisfactory form of heat. This statement is almost verbatim of what will be found in any college text book in use today. Where it differs is that the text book speaks of warm air heat as *convection heat*. Convection heat is, of course, the heat in air which is then quite obviously one and the same.

I think we all will agree and our customers will agree that our best authority on any subject is the college text book, but if that is not enough we can go a step further: we know that the sun shines from the sky and heats the earth. Then the winds move the air on the

*Article on Forced Air Heating for Industrial and Domestic Use, written especially for the 34th Warm Air Furnace Annual of AMERICAN ARTISAN by J. C. Miles, Vice-President Warm Air Furnace Fan Company, Cleveland, Ohio.

earth's heated surface and convects the heat; hence, the heat that surrounds our bodies is convection heat or warm air, which, if we may be pardoned for a possible sacrilege, means that the Supreme Engineer, God Almighty Himself, designed a warm air system for the universe.

Now, that point is interesting, isn't it? It is just as true as it is interesting, but our weak point is that the general public does not realize it yet, but they will realize it and appreciate it if this national movement is taken on by the dealer or installer. First of all, we want the installer to make sure of that doubtful job by using the proper fan to force the circulation; then we want the salesman to become familiar with what constitutes a convection heating or warm air heating system, so that he can tell the prospect or the public just exactly what convection heat is and be able to show that warm air heat is convection heat and vice versa.

Warm Air Sustained by Highest of All Authorities

We know we are sustained by the highest authorities, both finite and infinite, and who in the name of common sense could go higher for authority? If we have to prove our authority, all we need to do is to think of the temperature of the North Pole, where the sun always strikes the earth at an angle. Then reflect on the temperature of the equator, where the sun strikes the earth fair. Another proof, visualize the snow-capped mountains 5,000 feet up, while at the same time down in the valley in that strata of convected heat—down where the sun strikes and heats the earth's surface—the temperature is 100 degrees F. in the shade and the orange blossoms abound.

As we said before, this is a national movement and the furnace man who would go forward should get in on the ground floor of this forced air heating movement and reap the harvest that is here now.

All we need is the courage to ask a better price for a better system. Our low prices are to our detriment. If we would insist on putting the

quality into the job and ask a good profit, we would increase our volume.

In a word, if we can induce the dealer to put the proper fan on that doubtful job (which we all know are legion), 50 per cent of the unsatisfactory jobs will be eliminated.

Did you ever keep account of how much it costs to correct a trouble job? Well, it would amaze you if you knew. Statistics have it, and we think they are right—that more than 60 per cent of the furnace man's yearly profit is used up in correcting trouble jobs.

After all, furnace troubles are mostly circulation troubles. If we can insure circulation, we can insure satisfaction.

The first start-off on this program is to get a fan on your display furnace on the floor, run a pipe up to the ceiling, then down to the floor, to show the customer that it can be done. Put a wall register box and register on the floor, with ribbon tie to it some streamers, and turn on the fan. If it is a hot summer day, get the ladies' silk stockings in the current of cooling air and cinch the job for immediate installation as a cooling system.

Reports on Increase of Code's Use Not so Encouraging

Warm air furnace installers apparently are not taking to the Standard Furnace Code as rapidly as was anticipated. A questionnaire which AMERICAN ARTISAN sent out in connection with the work of preparing its 34th Warm Air Furnace Annual produced the following results. The question asked of furnace manufacturers was, "What percentage of your installers have responded to your plea to use the Standard Furnace Code?"

Twelve per cent of those manufacturers who answered the question said that 50 per cent of their installers were using the Code. Twelve and one-half per cent said 75 per cent of their installers were using it, and 12½ per cent said that all of their installers were using it. Two and one-half per

cent said that 40 per cent of their installers were using the Code, while another 2½ per cent said that only five per cent of their installers were using it.

Two and one-half per cent said that 60 per cent of their men were using it. Five per cent of those answering the question said that only 10 per cent of their dealers were using the Code.

Seven and seven-tenths per cent said that 30 per cent of their dealers were using the Code. Fifteen and one-tenth gave "very few" as their answer, while another five per cent answered with "increasing," and 22.7 made no reply.

Manufacturer's Profit Figures Show Variation from Those of Last Year

Warm air furnace manufacturers are pretty much divided when comparing their sales for 1927 with those of 1926. To the question, "How do your sales for 1927 compare with those of 1926?" 33 per cent of those answering the question said their sales were about the same as those of last year.

Another 33 per cent said that their sales had been from 10 to 20 per cent less than last year. Eleven per cent indicated that their sales would run about 10 per cent more, while one per cent said they would record from 20 to 30 per cent more sales than last year.

Eight per cent of those who answered the question said they had had an increase of 100 per cent in sales over last year, while the remaining 14 per cent did not answer that particular question.

The question, "Is your margin of profit less or more than last year?" 40.5 per cent intimated that their margin of profit was less. The same percentage said that their margin of profit was the same as it had been last year, while 8.1 per cent said it was more than last year. Two and seven-tenths per cent said they could see no margin of profit, while the same percentage said their margin was 75 per cent less than last year's. The remaining 5.4 per cent did not answer the question.

Lodge Room and Club House OFFERS PROBLEM to Warm Air Heating Engineer

Structure Now HEATED SUCCESSFULLY to 70 Degrees in 20 Below Zero Weather

By WILLIAM GUNTON*

THE accompanying plan is one which recently passed through our engineering department, and attracted the attention of the writer. There are several reasons why this plan should attract one's attention and possibly be of interest to AMERICAN ARTISAN readers.

Being a combination lodge room and club house, it is a type of building which the furnace dealer is not commonly called upon to heat. Since the living quarters have to be heated in conjunction with the lodge and club rooms, a difficult situation is encountered. That is, taking care to see that the job is not laid out one sided, so that the leader pipes to the lodge and club rooms

rob the leader pipes to the smaller rooms. By looking at the basement plan of this lay-out one can see that there are just three large ducts, near enough the same size that one duct does not rob the others. Branches from these larger ducts then lead to the riser pipes for the small rooms.

Another difficult problem which is usually found in a job of this kind is the return of cold air. A large duct has been dropped down the corner of the dining room on the first floor and this takes care of the cold air from the living quarters on the second floor. In a like manner, the cold air from the lodge room on the second floor is taken care of.

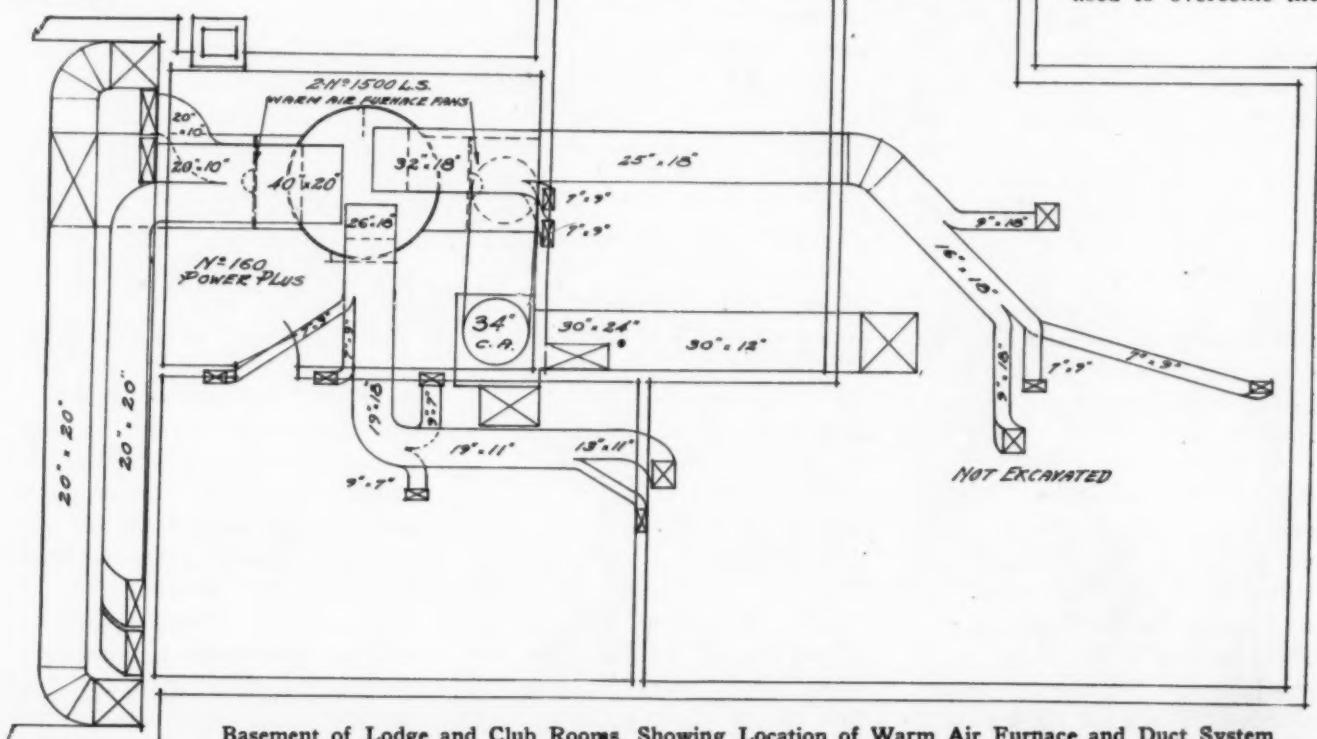
The heating system in this particular building has been figured to heat the building to a temperature of 70 degrees Fahrenheit when the

outside temperature is 20 degrees below zero. This is with an ordinary combustion rate and a low register velocity. By keeping the register velocity low, unnecessary noise in the lodge room caused by the fan is eliminated.

The building has a cubic content of some 55,000 cubic feet; wall surface, less glass, of 3,430 square feet, and glass surface of 804 square feet.

We find that it requires a total of 108,696 B. t. u.'s for the heat loss due to the cubic contents of this building; 82,320 B. t. u.'s for wall surface; 73,920 B. t. u.'s for the glass surface; and allowing 15 per cent or 39,740 B. t. u.'s for wind velocity or leakage. We have a total of 304,676 plus 10 per cent for surplus, which makes a total of 335,143 B. t. u.'s to be supplied by the heater.

The heater which is used to overcome the



Basement of Lodge and Club Rooms, Showing Location of Warm Air Furnace and Duct System

heat loss figured is a No. 160 Power Plus warm air generator, having eight square feet of grate surface. With this amount of grate surface the total amount of B. t. u.'s required can be supplied with a combustion rate as low as six pounds of

coal per hour, which is comparatively low for a temperature of 20 below zero.

On each side of the heater a No. 1500 L. S. Miles automatic furnace fan is connected. These two fans together have a capacity of 4,400

C. F. M., which is sufficient to furnish about 5 hourly changes of air.

This job, at first glance, may have appeared somewhat difficult for a warm air furnace installation, but upon a closer inspection one finds that it is rather simple.



First and Second Floor Plans of Lodge and Club Rooms Heated with Forced Warm Air, Showing Location and Size of Warm Air Registers and Cold Air Return Faces

TWO-THIRDS SOLD

Dar yo' is—Sho amb, ain't it?

By HARVEY A. CALL*

TWO little darkies sat rather dejectedly gazing at the book which little Rastus had drawn at Sunday school as his Christmas present. Neither of them could read. Presently little Mose piped up, "Rastus what amb the name of yo' book?" Studying the cover intently for a few moments little Rastus, his face wreathed in an exultant smile, answered, "Dar yo' is," as he passed the book to Mose. Not to be outdone Mose intently scanned the beautiful cover and as he passed the book back to Rastus enthusiastically exclaimed, "It sho amb, ain't it?" Noncommittal—eh?

Right here S. J. C——drops into our office, pulls a chair up to my desk and that is the turning point of this story.

Do you know so and so, an architect in — city, he asks. "Have frequently heard of him; his reputation is splendid; but have not met him," I replied. He's an "up and downer" says S. J. That one was too deep for me and I confessed it by telling S. J. that "up and downer" registered "no sale" with me. Well, says S. J., I mean that luck has to splash all over that architect before he ever gets a job. Why, and S. J. goes on, I sat in a meeting of directors while that architect was showing a corking preliminary plan; everything was going "all jake"; job practically his, when a director makes a fool suggestion for a change in plan. Does that architect stand his ground? He does not. A lot of discussion follows and then the architect takes the plan back and fools away several days trying to work in the director's suggestion—the next thing some other architect has the job. Two-thirds sold, and

remember the architect had done lots of fine, big jobs, has a wonderful reputation for architectural ability and had a corking preliminary plan for the directors to pass on—two-thirds sold, just about as good as—"Dar yo' is—sho amb ain't it?"

Anyhow as I picked up my pen to finish this article, the story S. J. had told me about that architect was still milling around in my head. Mixed with thoughts of sheet metal contractors in the sheet metal industry—we get what? Two-thirds sold leaves one-third the selling to be done and that last third of the selling job—well, the architect did not do it, another chap did and got the job. And say, take that last third of the selling job, scrape it a little, swab it with acid and hammer it down and when you get ready to solder—what have you got—nothing less than all of the opportunities of the sheet metal contractor to build business and make money. "Dar yo' is."

Old Silent Sam Dunkle in your town, "Mebbe can't talk worth a cent, no blah nor much bull about him—just goes on and makes money out of his sheet metal business—and how? A word here, a suggestion there; knows his sheet metal onions, what's good, what's better, which is best. Does good work and has a reputation for doing good work. Keeps his eyes peeled for work to do. All of that helps Dunkle to do the last third of the selling. Perhaps, he has a nice neat show room. That helps some more. Maybe a little advertising—that helps some more. Never overcharges, nor "by gosh" ever does work for nothing. Tells everyone and anyone, pronto—to go somewhere else if they are looking for something for nothing. That helps too. Its all a part of old Sam. Sho amb ain't it?

Selling, all the forces involved in sales, what will or does sell are always hard to fix definitely. With

copper, brass and bronze the unique excellence of the metals undoubtedly play an important part. This was very aptly illustrated by a sheet metal contractor who recently told me he had over four hundred salesmen out working day and night. Rather amazing—but, I was soon to learn that he had over four hundred well done copper jobs and that he was wise enough to recognize every one of those jobs as a salesman working always to bring him more copper work.

Durability of copper, brass and bronze, the ability to go on giving service for scores of years without replacement or repair and the exceptionally low price at which such splendid service can be had by the property owner do, therefore, play a large part in making copper and its alloys two-thirds sold before the sheet metal contractor starts selling it to the public.

Also the tremendous amount of publicity work carried on by the Copper & Brass Research Association plays an important part in doing the first two-thirds of the selling of copper and its alloys to the public before the sheet metal contractor begins his activities. Here again, the unique superiority of copper, brass and bronze for roofing, gutters, downspouts, flashing and similar jobs is vital; for no product is worth while which cannot nor does not live up to the claims made for it in advertising copy.

So here, at the end of the year and as we are about to launch into 1928 copper comes to the sheet metal industry two-thirds sold. The efforts and activities of the Copper & Brass Research Association are enlarged and we hope more effective—and, as ever, good copper jobs are making, in all parts of the country, better friends for sheet metal contractors. So, the old sheet metal adage, "One good copper job sells

*This article on "Two-Thirds Sold" was written especially for AMERICAN ARTISAN 34th Warm Air Furnace Special by Harvey A. Call, Mid-Western Representative of the Copper & Brass Research Association, Landreth Building, St. Louis, Missouri.

another," is still good and true. Sho amb, ain't it?

The wheel of friendship—a public spirited individual, prominent in the affairs of a good sized western city fretted over the poor hotel facilities of his city. Soon he became actively engaged in boosting for a new hotel. A stock company was organized, funds raised, architect engaged and the new hotel building was soon under way. Financial difficulties appeared on the horizon and made changes in construction necessary. Reduction of expenditures seemed essential. The plumbing contractor who had the plumbing contract suggested savings could be made by substitution of materials. Corrodible metal pipe for brass pipe, showers eliminated and some slop sinks not installed. Those were his recommendations. As the public spirited citizen (he now largely owns the hotel) told it, "Why it seemed to me then that plumbing

contractor was the only friend I had—he was actually trying to save me money. But now the hotel has been in use about six years and I hate and detest the sight of that plumber because he led me into using the wrong materials and caused me to leave out fixtures which are essential to every hotel of this class." On and on that public spirited—now hotel owner—raved, winding up with, "That fellow is an unintelligent misfit just shamming under the title of contractor." That little incident came to me straight first hand. I am going to leave it with you. Who wears the broadest grin, gets up feeling pepiest and sees the greenest trees mornings on the way to the shop—the fellow who has over 400 salesmen working for him or the chap who substituted himself out of a good friend and made an enemy from whom he gets no business? Dar yo' is. Here's something to ponder over in spare time.

impressed with the entire industry he represents.

Improvement, yes, more warm air furnace men endorsing and using this wonderful force of friendly competition. The day is rapidly passing when a prospect, during the process of picking out his furnace and dealer, hears all dealers in his community condemned for their inability and finds his general opinion of the warm air furnace industry, as a whole, shattered. He finally shuts his eyes and buys some furnace with fear and the dread that perhaps it won't work and wishing that he had chosen some other method of heating.

To appreciate the full power of this contention let us permit the imagination to take possession of the subject for an instant. Suppose in 1928, tomorrow, right now that every member of the warm air furnace industry would endorse warm air heating done by any reliable competitor—in other words resolve to be a friendly competitor. If this would be done 1928 would find this industry well on the way towards reaching the potential possibilities.

The time has passed or perhaps never was when a family, a partnership, a corporation or an industry can harbor and speak bad opinions to prosper. Competition must exist—yes—it should be aggressive, firm, convincing, honorable and dignified but it certain must be friendly competition.

Combination Sheet Metal and Warm Air Heating Shop Still Predominates

In spite of the fact that many people think it impossible or impractical to operate a combination sheet metal and warm air heating shop, the majority of shops are still doing business as combination shops. This was shown by the answers to the questionnaire sent out by AMERICAN ARTISAN, which asked, "Do you operate a combination sheet metal and furnace shop?" Eighty-two and twenty-hundredths per cent said they do operate a combination shop, while the remaining number said they did not.

FRIENDLY COMPETITION

By R. C. WALKER*

WHEN members of a family, a partnership, a corporation, an industry are not in harmony they seldom progress to the same degree as those who enjoy a friendly tolerance toward one another. The warm air furnace industry is no exception, and unless all manufacturers, jobbers, dealers and salesmen in this industry cease their efforts to belittle the product and principles of their various competitors, we as an industry most certainly will find our battle for full recognition by the public increasingly difficult.

It would not be a startling or unusual statement to say that every man in our industry is convinced that the thorough, untiring research work carried on by our industry has placed us on a highly scientific basis and strengthened our faith in warm air heating. Was not this full, complete and remarkable accomplish-

ment made possible only by friendly co-operation?

If there remains a man in our industry who has faith only in himself and his particular product and none in his competitor he most certainly is living in a fool's paradise and standing in his own light, a detriment to the entire industry. Better he should lose his good opinions of some other industry outside his own who, for instance, manufacture and market merchandise not as essential as healthful heating, but who gets the consumer's dollar nevertheless.

In my humble but firm opinion the competitor of any warm air furnace manufacturer, jobber, dealer, or salesman is not his brother manufacturer of warm air furnaces. The real competitor for the consumer's dollars are members of comparatively new industries, who having started after the consumer's dollar only recently have exercised their ingenuity to the point where constructive salesmanship gets the dollar and leaves all potential buyers

*This article on "Friendly Competition" was written especially for the 34th Warm Air Furnace Special of AMERICAN ARTISAN by R. C. Walker, Peoria, Illinois.

Showing Development of Pattern for Hood Over HOTEL RANGE

Such Canopies Can Be Made ORNAMENTAL AS WELL AS SERVICEABLE

By O. W. KOTHE, Principal St. Louis Technical Institute

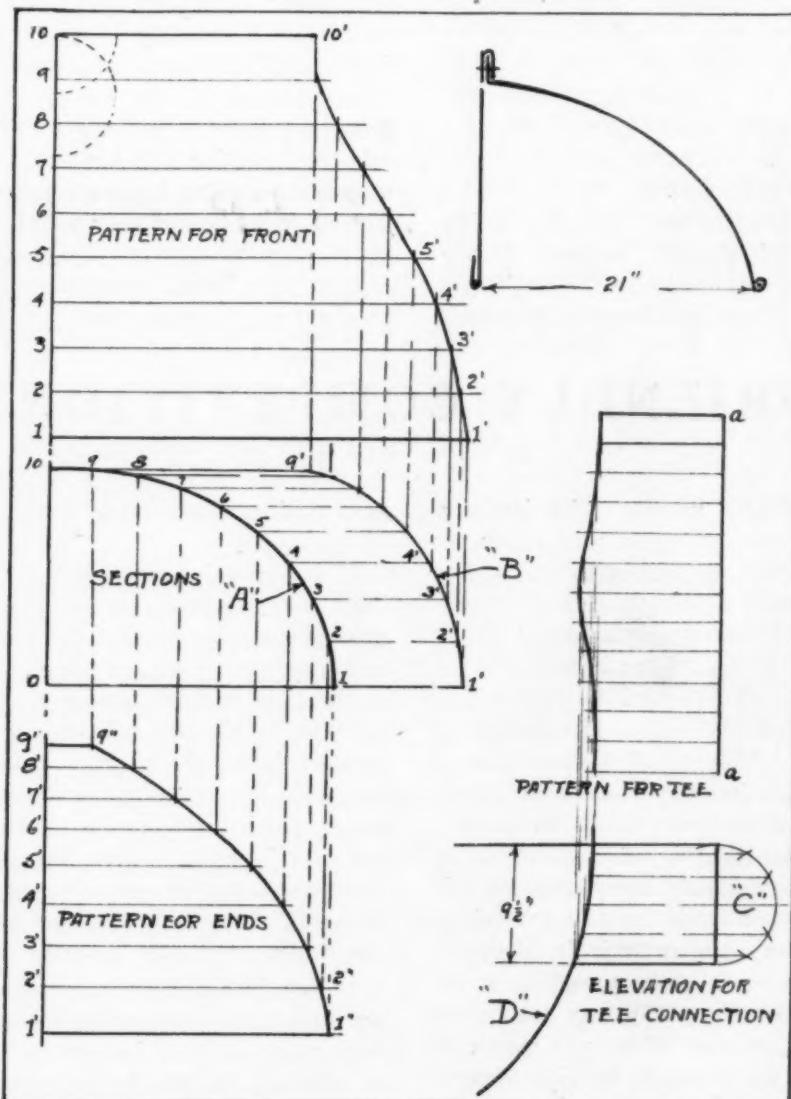
IN THE campaign for better ventilation many appliances that used to give off odors and steam or vapors are now being hooded in one way or another to trap these objectionable vapors or fumes. In our case we show one section that is often used for hotels or kitchen ranges and also along walls of manufacturing plants for taking care of fumes and vapors from some of their machines.

It is quite a problem of design to know just what shape of hood is best for all conditions and so every sheet metal worker should have a good knowledge of geometrical design. In this way he can always create any odd shapes as well as design them with a fineness of line and goodness of taste such that the work is an ornament as well as a service. Many men really do make some terrible shaped hoods, and to them these designs are no doubt the most wonderful creations in the world; but to the rest of the world they are a terrible eye sore. This shows what mental training is and the difference in mentality between people who have geometrical training and those who have not.

Now when making such hoods it is a common practice to make the front projections of sufficient width as is indicated in this case by 21 inches. Then the ends, instead of being made to a 45-degree miter as many men would do this, they are made to a straighter curve having less projection. This is shown by section "A" which is the front projection, and section "B" which is the end curve. Now in ordinary drawing to arrive at the correct development most men would draw a plan and then develop a modified profile for the end. But in our case we develop the one from the other and in that way save considerable

work. First draw the section "A" giving it the height and projection you desire, also the curvature. We might say that considerable variation can be made in this curve 1-10, but it should be made as graceful as

ing it somewhat straighter than the section "A." These two sections then become fixed lines from which the development is made. Now divide the section "A" in any number of equal spaces, as from 1 to 10.



Pattern for Hotel Range Hood

possible, preferably to the shape of an oval or an ellipse, which is much more pleasing to the eye than the harsher quarter circle would be.

Next fill in the section B as 1'-9' giving it the curvature desired, mak-

From each of these points carry over horizontal lines to intersect "B" as in points 1'-2'-3'-4', etc. This is all that is necessary in preparing to develop the pattern.

In setting out the pattern for the

front we pick the girth from the section "A" as from 1 to 10 and set it off on a vertical line above the elevation as from 1 to 10'. From each of these points draw stretchout lines and then from each point in the section "B" as 1'-2"-3'-4", etc., erect lines to cut off stretchout lines of similar number as 1'-2"-3", etc., to 10'. Sketch a uniform curve to these intersections and you have the miter line cut where the front will intersect on the ends.

To develop the end pattern pick the girth from the section "D" as 1'-9" and set off below elevation as 1'-9". Draw stretchout lines and

then drop lines from each point in section "A" until they intersect lines of similar number as at 1"-2", etc. Sketch a uniform curve through these points and you have the pattern for ends. Edges for assembling must be allowed extra. Along the bottom edge a wire is often enclosed and if there are possibilities of deforming, some stiffer structural members as angle iron are used.

In the top a vent pipe is placed, and to develop this we show the detail at "D" which is a reproduction of the section "A." Straight with the back we place the tee "C" and

develop it similar to a tee setting on a pipe of different diameters, where the lines from "C" intersect the body "D." Then the stretchout from the tee is picked from "C" and set as a-a. After this lines are projected by the usual development method until the pattern is developed as shown. The opening in the body of hood for the vent pipe can be just an ordinary circle, which geometrically is not quite correct but it is sufficiently so since the curve is not very pronounced in the hood at this point. This pattern is deserving of thorough study by the contractor.

THE HUMAN TOUCH IN BUSINESS LETTER WRITING

By H. ROWLAND ENGLISH*

IN these days of keen competition, most business men have come to realize the need of better business letters. They have found, too, that one of the most effective ways of improving their letters is to use "the human touch." The old-fashioned "communication" was as dry as dust. It was filled with "canned" language. It seemed to be machine-made. The modern business letter, however, has personality and life. A few illustrations will bring out the contrast between the two types.

A Lifeless Letter

Some time ago a manufacturer of insulating material ran an advertisement in certain national magazines for the purpose of securing requests for a booklet entitled, "Bare Pipes Waste Fuel." It was a good advertisement, and inquiries came rolling in. If the letter that was sent out in response to those inquiries had been written by a

careless correspondent, it would probably have read about like this: "Dear Sir:

"We are in receipt of your valued favor of the 5th inst., requesting a copy of our booklet, "Bare Pipes Waste Fuel," and in reply beg to state that we are mailing you today, under separate cover, a copy of same.

"This booklet contains full information concerning our insulating materials, and it will be worth your while to give it your careful attention. Our products are the best on the market, and if you see fit to purchase a supply, you will find it possible to effect a considerable saving in your fuel bill.

"If, after perusing this booklet, you should desire further information, kindly let us hear from you, and we shall take pleasure in supplying the desired information.

"Trusting that this will answer your request satisfactorily, we are,

"Yours very truly,"

Now this letter has some serious faults. It might be worse, but it might be much better. It is filled with lifeless, moth-eaten phrases. Such expressions as "we are in receipt of," "your valued favor," "the 5th inst.," "in reply beg to

state," "under separate cover," "of same," "take pleasure," "careful attention," and "the desired information" are dead wood. They should not be used at all in a business letter. They have all been worn threadbare.

It is not necessary to say that "we are in receipt of" the inquirer's letter. It may be taken for granted that we have received the letter; otherwise we would not be answering it.

A letter should be referred to as a "letter." The reader will not be flattered by such a high-sounding expression as "your valued favor."

"The 5th inst." may be perfectly proper in a formal legal document, but we should leave that expression to the attorneys. Legal Latin does not belong in a business letter.

"Beg to state" is just as out-of-date as the expression that was so often used by our great-grandfathers, "I take my pen in hand." American business men are not beggars. They say whatever they have to say in a straightforward, man-to-man fashion—courteously, but without bowing, scraping and begging.

"Under separate cover" is another old offender. It is a wordy, grandiose phrase. Why not say

*This article on "The Human Touch in Business Letter Writing" was written especially for the 34th Warm Air Furnace Annual of AMERICAN ARTISAN by H. Roland English, Associate Professor of Business Administration, University of Wisconsin, Extension Division. Professor English is also the head of the Department of Business Administration in the Extension Division and chief of the Bureau of Business Information.

December 31, 1927

simply, "We are mailing it separately" or "in another envelope" or "your copy has been mailed"?

One of the most abused phrases in the language is "of same." In a legal paper it may properly be used, but in a business letter the words "of it" and "of them" are more proper, more effective.

This letter has other defects. Let us look at a few of them. The reader will not be favorably impressed by the statement, "our products are the best on the market." He has heard that before. "That's what they all say," he mutters to himself. "Those fellows are like all the rest. They claim everything and prove nothing." He becomes suspicious when such extravagant claims are made.

Advertisers who understand human nature avoid such broad claims unless they can back them up with unanswerable proof. They prefer to understate the merits of their products, rather than run the risk of being suspected of exaggerating. They say things that their readers are more likely to believe, using such slogans, for example, as "United States Tires Are Good Tires" and "Kuppenheimer Good Clothes."

Another fault of this letter is that it uses stilted language instead of simple words. It says "purchase" when it should say "buy" and "perusing" when it should say "reading." Abraham Lincoln has given some advice that all business correspondents would do well to follow: "Write so the simplest can understand and the others cannot misunderstand."

A writer should stop when he is through, but some letter writers have the mistaken idea that they should close with a little benediction. The letter that we are looking at closes with the weak and wobbly sentiment, "Trusting that this will answer your inquiry satisfactorily, we are." "Trusting," "hoping," "believing"—such words are always weak. "We are" is too stiff. The beginning and the end of a letter are the most vital parts. They should not be cluttered up with

dead words and pious wishes. They should say things that are worth saying.

A Letter with the Human Touch

Fortunately, the firm that prepared the little booklet—it was Johns-Manville—answered its inquiries with a human letter. They did it this way:

"Dear Sir:

"Thank you for your request for the booklet entitled "Bare Pipes Waste Fuel."

"Here is your copy. You will find in it information which will enable you to make a substantial saving in your fuel bill. Johns-Manville has served industry in this way for many years and now we hope to extend that service to the home-owner.

"If you would like additional information that applies directly to conditions in your own home, send us the full particulars.

"We shall be glad to give you the information without obligating you in any way.

"Yours very truly,

This letter made a favorable impression because it talked to the reader. In every line it carried a message of friendliness, cheerfulness and service. That is good salesmanship. And it was free from the overworked phrases—the letter-jargon—that spoil so many business letters.

Write as You Would Talk

The best letters are written simply, naturally, just as we would talk. They are, of course, correct in grammar and punctuation and appearance. But a letter can be correct, clear, concise, courteous, and still miss its mark. A really successful letter is sincere and human.

Before you start to dictate, imagine that your reader is standing before you. Look him straight in the eye. Then say what you have to say—as you would say it face to face. Make him feel that your letter comes from a flesh-and-blood man who is interested in his problems and wants to be of service to him.

Have you tried this? If so, you know that it pays to make your reader feel "the man behind the sentence."

* * *

The Extension Division of the University of Wisconsin was a pioneer in making useful information available to those who are unable to attend a college. It does this through extension classes, correspondence courses, and various information bureaus. About 400 correspondence courses are offered, in which are enrolled some 17,000 students from practically every state in the Union and from many foreign countries. Because of the increasing interest in better business letters, the course in business correspondence is one of the most popular subjects.

James Doherty, Chicago Office Utica Heater Company, Dies of Heart Disease

Funeral services for James Doherty, Vice-President of the Utica Heater Company and more recently a Director of the National Radiator Corporation, were held at 4 p. m. Wednesday, December 28, at the chapel of the Fourth Presbyterian Church, Chicago. Mr. Doherty's demise occurred suddenly in his home at 2600 Lake View Avenue, Chicago, December 26. Heart disease was the immediate cause of death. After the services in Chicago the body was shipped to Sarnia, Ontario, for burial.

At the time of his death Mr. Doherty was only 58 years of age. For the past fourteen years he had been in the Chicago office of the Utica Heater Company, Utica, New York. When the National Radiator Corporation was formed, of which the Utica Heater Company is a division, Mr. Doherty was made a director of that corporation. He had a wide acquaintance in the furnace and boiler trades and was extremely well thought of throughout those trades and by all with whom he came in contact in his daily activities.

Prior to going with the Utica Heater Company, Mr. Doherty was

with the International Heater Company, Utica, New York, and the Richardson & Boynton Company, New York City. He came to the United States from Ontario, Canada, where he was an officer of the Doherty Manufacturing Company, Sarnia, Ontario.

Mr. Doherty was also prominent socially. He was a member of the Oak Park Country Club, the Medinah Athletic Club, and a member of the Mystic Shrine. He is survived by his widow, Ella M. Doherty, one son, James Russell, two brothers and five sisters.

**W. A. Brown, Marion, Ind.,
Sheet Metal Contractor,
Dies Following Operation**

The funeral services of W. A. Brown, who passed away at the Methodist Hospital at Indianapolis following an operation, were held at his home in Marion, Indiana, Saturday afternoon, December 24th. Burial was at Fairmount, Indiana. He had been suffering for a long time with a kidney ailment, and had been for some weeks at the hospital in Indianapolis.

Mr. Brown was a prominent citizen of Marion for many years prior to his death, having owned and operated a large sheet metal shop.

He was active in the Sheet Metal Contractors' Association of Indiana, having sat on the board of directors continuously since its organization, where his sound advice and constructive suggestions were highly valued.

President Waters of the Indiana Sheet Metal Contractors' Association, accompanied by officers and directors F. A. Wilkening, John C. Henley, O. Voorhees and Paul R. Jordan, attended the services to pay their last respects to the sterling and lovable character of Mr. Brown.

**Warm Air Furnace
Installers Say They
Use Standard Code**

That warm air furnace installers have at least a speaking acquaintance with the Standard Furnace Code is evident from the replies made to AMERICAN ARTISAN ques-

tionnaire sent out to representative dealers in all parts of the country. The question asked, "Do you use the Standard Code in residence work?"

Taking the total number of installers who returned the questionnaire as 100 per cent, it was found that 96.39 per cent of those who answered the question said that they do use the Code in their work. The remainder did not answer that question.

**Between 20 and 25 Per Cent
Appears to Be Overhead
Charge Made by Installers**

Warm air furnace installers seem to be pretty well agreed that from 20 to 25 per cent is an adequate overhead figure to use. In answer to the question, "What percentage do you allow for overhead?" 35.74 per cent of those answering the question said they used 20 per cent. Another 28.49 per cent agreed that 25 per cent was the figure to use. The remaining answers ran as follows: 10.71 per cent said 10 per cent, 7.14 per cent said 15 per cent, 3.57 per cent said 30 per cent, 3.57 per cent said 50 per cent, while the remaining 10.71 per cent did not answer the question.

**Installers Divided on Value of
Follow-up Card Indices
in Their Businesses**

In the matter of keeping card indices for following up inquiries warm air furnace installers are not so good. In answer to the inquiry in this regard, 78.62 per cent of those who answered the inquiry said they did not maintain such follow-up indices. The remaining 21.44 per cent replied that they found a card index of great value to them in regularly following up inquiries.

On the other hand, about 57.18 per cent of these same installers replied that they did not follow up all of their own installations to see that everything was working all right, the remaining 42.88 per cent indicating that they do not follow up the work.

It seems rather strange that such a large percentage of installers

should indicate that they do not follow up their work, in view of the fact that this is one of the most potent methods of getting more business.

**Installment Selling Still
Predominates in Warm Air
Heating Business**

The installment method of receiving payment for furnace installations is still the predominating way, according to the answers received from warm air furnace installers to our questionnaire. Fifty-seven and seventeen hundredths per cent stated that installment selling is the rule rather than the exception in their localities.

Carrying the analysis a little further, we find that 32.16 per cent of these men do no installment selling at all. Eleven per cent said that about 10 per cent of their business was done in this way. Another 18 per cent said that about 30 per cent of their business was done this way, while 4 per cent indicated that 40 per cent of their sales are made this way. Eleven per cent said half and half, 4 per cent said 60 per cent, 14 per cent said 75 per cent, and 7 per cent said the full 100 per cent of their sales were made that way.

**Majority Furnace
Manufacturers Think Gas
Heating Becoming Factor of
Importance in Warm Air Field**

"Do you think gas heating is becoming a factor of importance in the warm air heating industry?" produced some very enlightening information from warm air furnace manufacturers. This question was asked in connection with the compilation of our 34th Warm Air Furnace Annual.

Fifty-five per cent of the manufacturers who answered the question said that gas is becoming an important factor in the field of warm air heating, while 32½ per cent did not think so, most of those replying in the negative giving as their reason that the cost of gas as fuel was still prohibitive. The remaining 12½ per cent did not reply to that particular question.

Small Advertiser Has BIG Merchandising Problem to SOLVE

How to Make His Small Appeal ATTRACT ATTENTION Constantly Before Him

By D. O. MORLEY*

THE world is certainly going big these days and it is going fast. Heaven knows what will come next, and if it is something almost unbelievable, we'll accept it without much surprise.

And look at the big advertiser.



The space he uses! The sky's the limit, and the big advertiser can afford space there, although sky-writing comes high. Billboards, broadsides, full-page newspaper ads. Wonderful, wonderful, wonderful! But, do you know, the more often we look and say "wonderful," the less wonderful they seem.

Advertising Message Must Have Individuality

There was a time when no one advertised. Of course, they had gossip in those days, but the ladies didn't have as much time for talking as they do now. Today everybody advertises, so the situation is much the same. But isn't it true that big advertising space is becoming so common that it lacks a lot of the boom it used to have?

To the furnace man and sheet metal shop owner this trend is very pleasing, as he has to depend pretty much on small newspaper space and small mailed advertising.

Advertising, which expresses the highest ideals of any business by telling people the very extreme perfection of the service offered, has little idealism in its conception, as

*Article on the Small Advertiser and How Some of His Advertising Problems Are Met, written especially for the Thirty-fourth Warm Air Furnace Annual of AMERICAN ARTISAN by D. O. Morley, Manager Advertising Art Service, Meriden, Connecticut.

you will find if you ever try to sell it. It is a bread and butter proposition with the individual advertiser. "What will I get out of it?" is the question and there is no use advertising unless you do get something out of it. First of all, it is necessary to realize that advertising, in your case, is not a get-rich-quick proposition. It is hardly a selling proposition, either. If it is good advertising, it will make them stop,

in your newspaper ad or mailing piece, if your name is not seen and remembered, you are entirely out of luck. You may have advertised metal shingles or created in some merchant's heart a desire to improve his store with a metal ceiling, but if you are not made one and a part of these thoughts, you are taking part in a grand uplift for the trade in general, but missing a chance for immediate returns for yourself.

You have a great need for help in advertising that is individually *your own* and which will give you added dignity before your prospects and keep them acquainted with the original fact that the craftsman who *does the actual work* is the most important party as far as they are concerned, the fellow who collects their money and must answer questions if everything is not O. K. when the job is finished.

Let's begin with one of the bad spots in shop owners' advertising—a spot that is disappearing but still visible. And it is little more than a "spot" on an otherwise presentable piece of advertising, which is made by the use of a rubber stamp and an ink pad. This spot is supposed to advertise the shop owner himself. Step into any print shop and see the precision in type and machinery required to produce a clean impres-



look, sniff around and listen to your personal sales talk when you call on them, but it is up to you to *sell them*.

Ability to Render Service Also a Factor

You are not interested in pushing any brand of materials, nor are you solely interested in advertising cold weather comfort, pipe or pipeless, or lasting economy, tin, slate, gravel or composition. You are interested in advertising *yourself* as against your competitors, your ability to handle whatever materials your customers prefer, and handle them so that these people get their money's worth and call again.

So, no matter what else gets over



sion and you will realize how useless it is to try to make your name presentable as advertising with a rubber stamp.

Technical Details Have No Place in Advertising

Next, keep your advertising simple. "Too much," is the common

criticism. A few words surrounded by sufficient white space will stand a much better chance of being noticed and remembered than a lot of type filling up the whole space. Remember that you are not selling to other experts in your line, and technicalities seldom get over with your prospects. The attitude your advertising goes up against is—"What will it do for me, how much will it cost me and why should I trade with you?" A good impression made by



an attractive ad will do more good than the most expert technical copy, because the expert copy would induce few people to read it at all.

In general, try to have interest, a little selling argument and your name, bearing in mind that if the *interest* element is *not* there, the chance is that nothing in the ad will be seen, and if the *interest* is there and your *name* is not seen and remembered by at least a few people, the *interest* element is wasted.

As examples of individual shop owners' advertising which include the above-mentioned requirements, the illustrations of specimen ads shown here will give you a clearer idea as to how it can be done. This kind of publicity, carefully done, is more advisable than bare technicalities or a bare picture of a new furnace.

Such human interest advertising in newspaper space or on blotters is well suited to the more limited means of the average shop owner and should step his advertising up to the quality which puts small business-promotion efforts on a paying scale.

ment should spread evenly around the cup joints, having plenty of body, so as not to sag and pull away from the sides. It should be composed of finely ground materials, as coarse particles leave air spaces between them and do not bind to form a compact mass, besides causing injury to the mounter's hands.

Adhesiveness is a paramount feature, for a cement is no earthly good unless it adheres to the castings. Mounters like a sticky cement for, as the old saying goes, "What sticks to the fingers, sticks to the castings." But to have a cement stick to the castings, the castings must be clean. Any rust or dirt or foreign material should be removed by wire brushing the cup joints. Then wipe out carefully with a wet rag.

It is good practice to paint the joints with a mixture of cement and water before filling with cement. In filling the joints, pack the cement in firmly; don't leave any soft spots. Set up the sections one upon another, avoiding twisting as much as possible. Be sure that the cement on the inside of the joints is smoothed off; this is just as important as the outside. Bevel off the outside of the joint flush with the top of the cup—an excess of cement here is of no extra value. Remember that good adhesion depends on the proper use of cement. Directions for the mounting of furnaces are on all cans and they should be strictly followed.

After the furnace is mounted, the job isn't finished, as one of the most important factors is still to come—the initial firing. Sometimes installers unwittingly cause the furnaces to be almost burned out and the cement rendered useless by the initial firing. Always start a very slow fire—the slower the better—as it warms the castings gradually and slowly drives off the moisture in the cement. The fire can be increased as time goes on and all the time the cement is slowly setting and forming the tight, compact joint which is free from pores and gas-tight. This is the end in view and the extra hour or two spent in this manner assures the installer of a 100 per cent efficient job.

Furnace Cement—Its Physical Properties and ITS SUCCESSFUL APPLICATION

Spreading Quality, Adhesiveness and Care in Starting Initial Fire POINTS TO WATCH

By WM. M. CROUSE*

THAT furnace cement plays a very important part in the success or failure of a warm air furnace to function properly is an admitted fact, and the purpose of this article is to further acquaint furnace manufacturers and installers with its properties and correct usage.

Furnace cement is made of asbestos fiber, inert pigments, with a vehicle or binder of silicate of soda. There are, of course, a good many kinds of these materials and it is up to the cement manufacturer to determine for himself the best of each and to mix them in such proportions as will give the best results. For that purpose we maintain a

large, well equipped, experimental department where materials are tested and put into use on warm air furnaces so that we may see for ourselves the results obtained in a practical way.

The physical properties to look for in furnace cement are, first, uniformity. This is of the utmost importance, as one can readily see that good results in mounting radiators cannot be obtained if one barrel of cement is soft and the next one hard. This causes dissatisfaction among the mounters and is apt to lead to their doctoring the cement to bring its consistency to their own liking.

The spreading quality is an important item, for a cement which drags under the knife is apt to leave air pockets, which are open to the penetration of gases from the fire and may lead to leakage. The ce-

*This article on the correct composition and application of furnace cement was written especially for AMERICAN ARTISAN 34th Warm Air Furnace Annual by William M. Crouse, of the Armstrong Company, Detroit, Michigan.

Do Furnace Guarantees JUSTIFY the ADDED EXPENSE They Cause?

Do These Guarantees BUILD GOOD WILL for Warm Air Heating Industry?

WARM air furnace manufacturers are not entirely in sympathy with the idea of placing a guarantee upon their furnaces. There are, it seems, too many factors which enter into the proposition over which the manufacturer has no control to make the placing of a guarantee upon the furnace of material value.

In order to give its readers an idea of what the attitude of the warm air heating trade on the placing of guarantees, AMERICAN ARTISAN presents herewith the statements of several manufacturers on the subject.

Harry Vap Bayse, President of the American Furnace Company, St. Louis, Missouri, writes as follows:

"I would like to have discussed the question of a five or 10-year guarantee on furnaces by furnace manufacturers. Our contention is that for a furnace manufacturer to guarantee a furnace for 10 years spells absolute suicide for a dealer who gets behind this 10-year guarantee. The dealer on the job is the responsible party, just the same as in the case of him indorsing a check.

"A friend of mine had two men enter his store just at closing time and pulled guns, telling him to open up his safe, and they succeeded in carrying off about \$3,000.00 in cold cash. The next morning he called up the insurance company who carried his burglar insurance, feeling satisfied that he would recover the loss. The insurance company explained that this was not burglary, but a holdup, and my friend did not recover a cent on his burglar insurance policy. His policy read entirely different after he was in trouble.

"We will ask the dealers who are selling a furnace with a five or 10-

year guarantee to read their guarantee before they get into trouble. We do not believe that it reads with any assurance that they can get but a small portion of the parts that are required on these furnaces during 10 years' use. But at the same time, the dealer has impressed his customer with the thought that he is fixed for 10 years for free parts, which is positively not the case.

"No manufacturer can make his furnaces 'fool proof,' nor can any installer make his installations so they are 'fool proof,' and in the 10 years' use of his furnace he is going to be expected by his customers to render this free service, and when he is in trouble and he reads the guarantee from that standpoint and refuses to give these free parts and service, not only will the customer be off the dealer for life, but he will tell his friends to be sure and keep off of the dealer, who is likely to be called a 'horse thief' or something worse. He will accumulate so many enemies over this point during the 10 years' use of the furnace that he can't stay in business in his home town, and if he attempts to support all those 10-year furnace guarantees for 10 years, the chances are very favorable for him to go broke.

"Even though the manufacturer would furnish these parts, they are f. o. b. factory, and how many dealers can afford to pay the freight and installation of these parts out of his profit. It is simply a case of 'die dog or eat the hatchet' in our opinion, and the dealer had better read his burglar insurance policy before he encounters a holdup.

"We would like this point thoroughly discussed, as we believe it is of vital interest to advise the dealer who is handling warm air furnaces and especially to the dealer who is doing much business."

Thomas & Armstrong Have Guarantee with Reservations

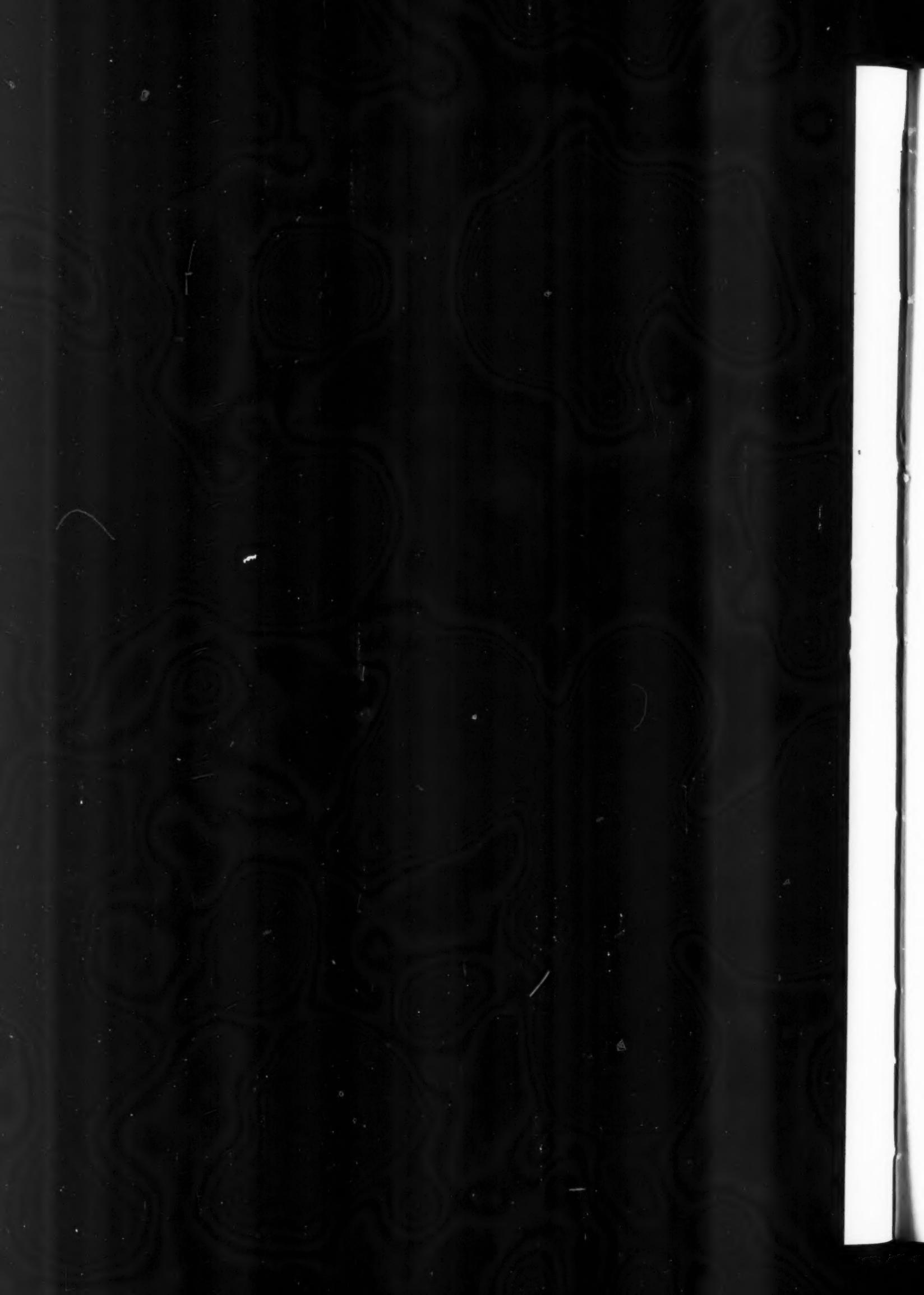
M. B. Armstrong, President and General Manager of the Thomas & Armstrong Company, London, Ohio, believes that the guarantee should be given with reservations, although the company does have a guarantee. He writes as follows:

"I have your letter of November 22nd in regard to giving a 10-year guarantee on warm air furnaces, and in reply will say, we do this on everything except grates and fire brick. We started out by giving a 7½-year guarantee, but it seemed general practice to give 10 years, and we decided to meet this competition.

"I believe it would be a great deal better for the industry if there was no guarantee given at all as far as years are concerned. I believe every furnace manufacturer should guarantee perfect workmanship, but I do not believe a furnace should be guaranteed for any specified number of years. Our opinion is based on the fact that we do not know who will fire the furnace or how well it will be taken care of. It is a known fact that a furnace operated by persons who are careful will last two or three times as long as a furnace that is operated by careless people. At some of our meetings held by manufacturers of steel furnaces we have tried to have the years cut down. We do not believe that five years would be so bad, but 10 years is a long while. The Lennox Furnace Company can probably give you more information on guarantees than any one else, for they are the ones who first put the 10-year guarantee on furnaces. They claim their records show that they can afford to do this and charge to advertising.

(Continued on page 330.)





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The most rigid miter ever made. Designed in two pieces which are joined together by a lock seam. The Barnes clip—an exclusive feature—is rigidly secured where the beaded edges meet. Accurate right angle and adequate bead insure easy assembly on the job.

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EAVES TROUGH, FITTINGS, ALL SIZES, ALL METALS.

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Barnes

THE unusual merit that characterizes Barnes Products is the result of a dominating spirit of undenied progress throughout the organization. Because of this unquestioned leadership, "As good as Barnes" has become a common expression in the trade. To serve you better than you were ever served before is our constant aim and ambition. On this basis of a square deal for all we invite your business.

Use Barnes Products to Build Better Business. Our Sales Manual Tells How. Write for Free Copy.

BARNES ZINC PRODUCTS COMPANY, 900 Blackhawk Street, Chicago, Ill.
Manufacturers of CONDUCTOR PIPE, ELBOWS, EAVER TROUGH AND FITTINGS. ALL SIZES, ALL METALS

{ 25 }

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Steel Buyers of the Middle West!



Indiana Harbor Works

INLAND STEEL COMPANY—with its plants conveniently located (at Indiana Harbor, Indiana; Chicago Heights, Illinois; and Milwaukee, Wisconsin)—controlling its manufacturing operations from ore to finished product—maintaining a corps of experts to aid you in your steel problems—is a logical source of supply for your requirements of:

**RAILS
BARS
PLATES
SHAPES
SHEETS**

~*~

INLAND STEEL COMPANY
FIRST NATIONAL BANK BLDG.
CHICAGO

Branch Offices and Representatives:

St. Louis Milwaukee St. Paul Kansas City New Orleans El Paso Salt Lake City

December 31, 1927

(Continued from page 326.)

"We had four of our furnaces burn out in one year in a church at Cincinnati. This was due to the fact that the furnaces were set in brick and the installer left no air space around certain parts of the furnace. Upon investigation we found they only had about half enough cold air capacity. We believe one of our furnaces will last 10 years without any trouble at all if it is taken care of properly, but when you have a condition such as we had in Cincinnati, they will not last one year.

"We do not give a guarantee to any one unless this coupon is filled out. In the case of Cincinnati, they had not filled out the coupon, and we would not have had to replace the furnaces as far as guarantee was concerned, but the furnaces were in a colored people's church, the congregation was very poor and the sheet metal contractor who bought the furnaces from our jobber was no good financially. The jobber did not feel that he should stand any of this expense, so we gave them four new furnaces, even though they had not been guaranteed. We believe it is a good idea for the manufacturer to take care of all trouble, but we do not believe in a guarantee for a period of years, although we are giving them in order to meet competition."

Security Stove & Manufacturing Company Does Not Believe in Guarantee

Here's the attitude toward guarantees of the Security & Manufacturing Company, Kansas City:

"Referring to the 10-year guarantee of warm air furnaces, our opinion is that a genuine guarantee covering destruction by the user is suicidal—while side-stepping, misleading guarantees will bring disrepute upon the industry. It is a hardship on the dealer as he loses his labor (and often freight) replacing the parts. *No well managed industry, as a whole, resorts to such questionable practices.*"

E. B. Langenberg, Vice-President of the Langenberg Manufacturing

Company, St. Louis, points out three factors which must enter into the consideration of a guarantee to the home owner. He writes as follows:

"It has never been the policy of this company to give a time guarantee on the Front Rank furnace, as there are three vital factors which govern the value of such a guarantee which can either make or break a company using it as a sales argument.

"These three factors are:

"First—it pre-supposes correct installation.

"Second—it pre-supposes proper management.

"Third—it affects the good will of the company in the community.

"Taking the first item, I believe that the majority of guarantees are protected in no way by any definite method of installation. Such a guarantee given with a Code installation might be valuable. Without, it is misrepresentation.

"On the second item the manufacturer has no control of the operation of his plant, and any system out of control under heavy firing is subjected to immediate damage, and the blame is always placed on the manufacturer.

"Under the third item the value of a 10-year guarantee is determined by the policy of the manufacturer making good on every demand for fulfillment of the guarantee without question. Where the manufacturer raises the question of management or improper installation, a certain ill will is created which cannot be overcome by nice talk.

"There are few things on the market today that will justify a 10-year guarantee. Automobiles are guaranteed for 90 days against defects, and the procedure for replacing defective parts is so complicated that the average consumer is disgusted with the service and with the car. Automobile tires, except through mail order houses, do not carry any guarantee.

"Guarantees have been so abused that the public is becoming skep-

tical of their value, and as far as the furnace industry is concerned, there is nothing to justify a guarantee of any length of time. Where a manufacturer gives full value for money received and backs his goods by reasonable adjustments, he is building much stronger than where he depends on a guarantee to place his goods in the hands of a consumer."

Standard Furnace & Supply Company Believes Only in Moral Guarantee

Fred L. Nesbit, President and General Manager of the Standard Furnace & Supply Company, Omaha, Nebraska, states the attitude of his company toward the guarantee of furnaces in no uncertain terms. He writes as follows:

"Replying to yours of November 22nd in reference to 10-year guarantee on warm air furnaces, I want to say that I am absolutely opposed to any printed guarantee by the manufacturers under any condition, mainly because I have never read a guarantee which I believe is worth the paper it is written on, as there are technicalities in reference to installation, firing, chimneys, etc., and it would be almost impossible to find one job in 10,000 that would comply with the requirements in all respects.

"My belief is that there is only one guarantee that is any good and that is a moral guarantee by any honest, reliable manufacturer who cannot afford to do anything but what is right in reference to any fault in his goods.

"Our observation is, in talking with many installers throughout our territory, that they are not in favor of manufacturers' guarantees, because they only agree to furnish repairs f. o. b. their factory, and the consumer expects the dealer to pay the freight and install these repairs without any expense to the consumer whatever, because they have a nice lithographed piece of paper that is supposed to be a guarantee to furnish everything new free for a number of years.

"In an article like a heating plant,

Helping to Increase Your Business

THE Copper & Brass Research Association is composed of the leading Copper producing and Brass fabricating companies of the United States. Its purpose is to increase the knowledge and uses of Copper and its alloys, Brass and Bronze. To do this it maintains a Research Department and a Building Service Department, and does extensive educational work.

Through its Building Service Department the Association obtains scores of requests each week from prospective builders throughout the country, asking for Copper roofing materials. These are actual sales leads. We mail them each day to the National Association of Sheet Metal Contractors, 336 Fourth Avenue, Pittsburgh, Pa.

You can obtain the sales leads for your city and territory each day by writing that Association. There is no cost or obligation on your part.

It is a part of the work of the Copper & Brass Research Association to increase your sales. The sales lead is one method we are using. Another is advertising in daily newspapers, national magazines, trade and technical publications.

The public is sold on Copper, Brass and
Bronze in Building

Are you getting your share of this business?

COPPER & BRASS
RESEARCH ASSOCIATION

25 Broadway - New York

the manufacturer must depend upon the consumer to operate and regulate it, and we have learned by experience, poor installing, poor management, firing and operating is the cause of nearly all furnace trouble."

**Monitor Furnace Company
Have Not Found Guar-
antee Necessary
in Selling**

S. C. Bernhardt, Vice-President of the Monitor Furnace Company, Cincinnati, Ohio, expresses the attitude of his company toward the guarantee of furnaces as follows:

"This answers your questionnaire of November 22nd regarding the 10-year guarantee of warm air furnaces.

"We at the present time do not have such a guarantee in effect, because we have never really found it necessary in selling.

"As you know, the way the furnace is installed and the way it is fired after it is installed has a lot to do with the life of it and can be made to last a long time or burn it out very quickly, and we, therefore, feel that this is an obligation that the manufacturer should not assume, because to do so and make the adjustments requires setting up a contingent liability fund which increases the cost proportionately.

"A number of our salesmen have often suggested that we put a five or 10-year guarantee on our furnace, giving as the main reason that certain other manufacturers are doing so, and I believe that is the main reason why many of the manufacturers do it, simply because the other fellow does."

**International Heater Com-
pany Would Give
Guarantee with
Reservations**

Clarence M. Lyman, International Heater Company, Utica, New York, states that no furnace manufacturer should hesitate to place a guarantee upon a furnace where it is installed in strict accordance with the Standard Code. His views are expressed as follows:

"In reply to yours of November 22nd, the writer's views can be

compressed into a comparatively small space.

"If furnaces are installed according to the Standard Code, we can see no reason why any manufacturer should not be perfectly willing to give a 10-year guarantee, but under no circumstances would we consider it advisable to give a guarantee unless all the conditions of the Standard Code were fully complied with."

**The Pro and Con of the
Ten-Year Guaranty**

F. G. Sedgwick, Vice-President, The Waterman-Waterbury Company, discusses the furnace guarantee proposition as follows:

"As one whose product is backed by a Ten-Year Guaranty, I feel that I can perhaps speak with some authority on the reasons for the adoption of the Ten-Year Guaranty.

"It was quite the style a few years back for the salesmen of many competing firms to dismiss the steel furnace with the remark: 'Oh, a steel furnace is all right as long as it lasts, but it won't last.'

"The steel furnace manufacturers were all of them confident that the steel furnace, when properly constructed, is more durable than the average furnace, and the steel furnace manufacturers sort of got tired of hearing this everlasting prattle about steel furnaces burning out and buckling and rusting.

"And some steel furnace manufacturers were sure enough of their own product to be willing to put it out under a positive guaranty for ten years.

"This is my version of the beginning of the Ten-Year Guaranty and I am of the opinion that it has done much to overcome the false prejudice that existed in the minds of many regarding the prospective durability of a steel furnace.

"I have not seen any manufacturers of other than steel furnaces who are willing to guarantee their product for this length of time.

"Now it is my contention that the need justified the remedy, but I don't want this to be interpreted to mean that I am defending long time

guarantees, whether for furnaces or for any other products.

"I believe that a long time guaranty is something that should be used only where the need justifies it. In this case I am of the opinion that the need was great and I believe that the Ten-Year Guaranty is fulfilling its mission.

"When this mission has been fulfilled, I am perfectly willing that the practice shall be dropped."

**Agricola Furnace Company
Against Furnace Guarantees**

C. Ackerson, Vice-President and Sales Manager, Agricola Furnace Company, Gadsden, Alabama, finds the 10-year guarantee meaningless in most instances. He writes as follows:

"We do not believe in the practice of guaranteeing a furnace for ten years.

"If a manufacturer, through his dealer, or the dealer, through the manufacturer, can and will absolutely guarantee the materials, workmanship, general construction and performance of a furnace to the consumer or home owner for a period of ten years without adding any 'Ifs' or exceptions to this furnace installation, and live up to the letter of this guarantee, then we feel that a ten-year guarantee would be perfectly all right and good business.

"We do not believe (nor do we feel it should) a guarantee, on a furnace only, to the home owner means much, if anything, as what he is after is a heating system that will give complete satisfaction and as the furnace depends entirely upon the installation, we believe that to mean anything to the home owner it would be necessary to guarantee this complete installation.

"We feel that as long as we have the human element to deal with, both in regards to the installer and the home owner or operator of a furnace, it is practically impossible to guarantee, for a period of ten years, the perfect operations of a furnace and materials that go into this completed job with any degree of belief in our own mind that we are justified in so doing."

TAYLOR MADE

Made by Taylor means the BEST in terne plate making—judged by more than a century's experience. And, whether it be terne plate made ENTIRELY BY HAND—by an old Welsh hand dipping process and branded

TARGET AND ARROW ROOFING TIN

(Formerly known as Taylor's "Old Style")

or whether, for reasons of economy and to meet the keen competition in 40-lb. coated plates, it be made entirely by modern machinery and branded

TAYLOR'S EXTRA COATED 40 LBS. COPPER BEARING O. H.

you can depend upon it that you are getting the BEST in its respective class. Ample stocks of both of these plates are carried by distributors located all over the U. S. A.

N. & G. TAYLOR COMPANY
BROAD AND ARCH STREETS
PHILADELPHIA, PA.

Headquarters for Good Roofing Tin Since 1810

FREE FOR THE ASKING



THE LARGEST
MANUFACTURER
OF ITS KIND IN
THE WORLD



LIVE WIRE
DEALERS
ARE
EVERWHERE

GUIDE No. 25-A MACHINES AND TOOLS FOR SHEET METAL WORK

Get this splendid volume on file—consult it as frequently as the shop may call for new tools to make your product quicker, easier and better—then let the tools prove the sole judge of all claims made for them.

[108 Years
of conservative growth]

THE PECK, STOW & WILCOX CO.,

Southington Conn., U. S. A.

Chicago Warehouse Metal and Furnace Supply Prices

AMERICAN ARTISAN is the only publication containing Western Metal, Furnace Supply and Hardware prices corrected weekly.

METALS

PIG IRON

Chicago Fdy.	\$18.50
No. 2	22.01
Southern Fdy. No. 2	27.04
Lake Superior Charcoal	18.50

FIRST QUALITY BRIGHT TIN PLATES

IC 20x28	112 sheets	\$25.10
IX 20x28	22 sheets	29.60
IXX 20x28	56 sheets	16.20
IXXX 20x28	17 sheets	17.65
XXXX 20x28	18 sheets	18.95

TERNE PLATES

	Per Box
IC 20x28, 40-lb.	112 sheets \$25.00
IX 20x28, 40-lb.	112 sheets 25.50
IC 20x28, 25-lb.	112 sheets 21.75
IX 20x28, 25-lb.	112 sheets 24.25
IC 20x28, 20-lb.	112 sheets 20.00
IV 20x28, 20-lb.	112 sheets 22.50
IC 20x28, 15-lb.	112 sheets 18.50

"ARMCO" INGOT IRON PLATES

No. 8 ga. up to and including 1/4 in.—100 lbs.	\$4.55
---	--------

COKE PLATES

Cokes, 30 lbs., base, 20x28	\$13.50
Cokes, 30 lbs., base, 20x28	13.50
Cokes, 100 lbs., base, 20x28	14.00
Cokes, 107 lbs., base, IC 20x28	14.30
Cokes, 135 lbs., base, IX 20x28	16.40

BLUE ANNEALED SHEETS

Base 10 ga....per 100 lbs.	\$2.50
"Armco" 10 ga....per 100 lbs.	4.00

ONE PASS COLD ROLLED BLACK

No. 18-20.....	per 100 lbs. \$3.75
No. 22.....	per 100 lbs. 3.90
No. 24.....	per 100 lbs. 3.95
No. 26.....	per 100 lbs. 4.05
No. 27.....	per 100 lbs. 4.10
No. 28.....	per 100 lbs. 4.20
No. 29.....	per 100 lbs. 4.35
No. 30.....	per 100 lbs. 4.45

"ARMCO" GALVANIZED

"Armco" 24.....	per 100 lbs. \$6.15
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GALVANIZED

No. 16.....	per 100 lbs. \$4.30
No. 18.....	per 100 lbs. 4.45
No. 20.....	per 100 lbs. 4.60
No. 22.....	per 100 lbs. 4.65
No. 24.....	per 100 lbs. 4.80
No. 26.....	per 100 lbs. 5.05
No. 27.....	per 100 lbs. 5.15
No. 28.....	per 100 lbs. 5.30
No. 30.....	per 100 lbs. 5.70

BAR SOLDER

Warranted 50-50.....	per 100 lbs. \$36.50,
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Commercial 45-55.....	per 100 lbs. 23.50
Plumbers.....	per 100 lbs. 30.50

ZINC

In Slabs.....	\$ 8.50
---------------	---------

SHEET ZINC

Cash Lots (600 lbs.)	\$12.00
Sheet Lots.....	13.00

BRASS

Sheets, Chicago base.....	17 1/2%
Mill base.....	18%
Tubing, brazed base.....	26 1/2%
Wire, base.....	18 1/2%

Rods, base.....

15 1/2%

COPPER

Sheets, Chicago base.....	22 1/2%
Mill Base.....	21 1/2%
Tubing, seamless base.....	25 1/2%
Wire, No. 9, B & S Ga.....	18 1/2%
Wire, No. 10, B & S Ga.....	19 1/2%
Wire, No. 11, B & S Ga.....	19 1/2%
Wire, No. 8, B & S Ga. and heavier.....	18 1/2%

LEAD

American Pig.....	\$7.25
Bar.....	8.25

TIN

Pig Tin.....	per 100 lbs. \$65.50
Bar Tin.....	per 100 lbs. 66.50

HARDWARE, SHEET METAL SUPPLIES, WARM AIR FURNACE FITTINGS AND ACCESSORIES.

ASBESTOS

Paper up to 1/16.....	.6c per lb.
Roll board.....	.6 1/2c per lb.
Mill board 3/32 to 1/4.....	.6c per lb.

Corrugated Paper (260 sq. ft. to roll).....	\$6.00 per roll
---	-----------------

BRUSHES

Hot Air Pipe Cleaning	Bristle, with handle, each \$0.15
Flue Cleaning	Steel only, each..... 1.35

BURRS

Copper Burrs only.....	40-5%
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CEMENT, FURNACE

American Seal, 5-lb. cans, net	\$.40
American Seal, 10-lb. cans, net	\$.80
American Seal, 25-lb. cans, net	\$ 2.00
Pecora.....	per 100 lbs. 7.51

CHIMNEY TOPS

Adams' Revolving	Wt. Doz. Price Doz.
Damper	4 in..... \$1.00
Adams No.-Rivet Steel, with tail pieces, per gross.....	\$9.00
Tail pieces, per gross.....	3.50

CLINCHER TONGS

Front Rank, each.....	\$0.75
Per Doz.	8.40

CLIPS

Damper	per lb. 40c
Adams No.-Rivet Steel, with tail pieces, per gross.....	\$9.00
Tail pieces, per gross.....	3.50

COPPERS—Soldering

Pointed Roofing	per lb. and heavier.....
3 lb. and heavier.....	per lb. 40c
2 1/2 lb.	per lb. 40c
2 lb.	per lb. 40c
1 1/2 lb.	per lb. 55c
1 lb.	per lb. 80c

CORNICE BRAKES

Chicago Steel Bending	Nos. 1 to 6B..... Net
-----------------------	-----------------------

CUT-OFFS

Gal., plain, round or cor. rd.	30%
26 gauge.....	35%
28 gauge.....	35%

DAMPERS

"Yankee" Hot Air	7 inch, each..... \$1.75
8 inch, each.....	2.40
9 inch, each.....	3.00
10 inch, each.....	3.00
12 inch, each.....	.90

Smoke Pipe	7 inch, each..... \$0.25
8 inch, each.....	.40
9 inch, each.....	.60
10 inch, each.....	.60
12 inch, each.....	.90

ADAMS NO. 1 CHECK

Check and Collar Complete	2 1/2 in. each..... 2.00
9 inch, each.....	2.25

END CHECK ONLY

8 inch, each.....	1.60
9 inch, each.....	1.85

COLLAR ONLY

8 inch, each.....

A PARTIAL LIST
OF OUR
**HEATING AND VENTILATING
SUPPLIES**

Ventilators
Metal Cold Air Faces
Wood Cold Air Faces
Round Furnace Pipe
Single Wall Pipe
Double Wall Pipe
Registers and Fittings
Furnace Regulators
Revolving Chimney Tops
Cast Iron Smoke Pipe
Furnace Cement
Damper Quadrants
Chain and Pulleys
Asbestos Paper
Asbestos Mill Board

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OSBORN CO.
CLEVELAND

"EVERYTHING USED IN SHEET METAL WORK"

"American Seal"

FURNACE CEMENT

**Roof Cement — Stove Putty
Plumbers Putty**

PAINTS and SPECIALTIES

PATTERNS FOR STOVES AND HEATERS

**THE CLEVELAND CASTINGS PATTERN COMPANY
CLEVELAND, OHIO**

PATTERNS

FOR STOVES AND HEATERS FIRST-CLASS
IN WOOD and IRON
VEDDER PATTERN WORKS ESTABLISHED 1835 **TROY, N.Y.**

IRON AND WOOD STOVE PATTERNS

QUINCY PATTERN COMPANY

QUINCY, ILLINOIS

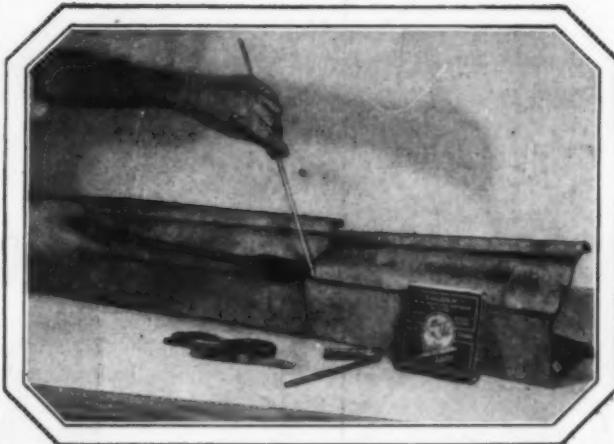
KESTER SOLDER

Self-Fluxing



(Underwriters' Laboratories Inspected)

"Requires Only Heat"



For Dirty Work

PARTS to be soldered should be clean—yes, but how often are they? In outdoor sheet-metal work dirty jobs are often met. Usually this work must stand up well and it is vital to have a well soldered joint.

On a job like that, Kester is in its glory. Just apply heat and see how the scientific flux flows out, just before the solder melts. An ideal combination—this scientific flux, and bright virgin tin and lead solder. The only result can be neat and substantial work. And at that, in a fraction of the time consumed by using common solder.



Kester Acid-Core Solder for general use in 1 lb. cartons; 1, 5 and 10 lb. spools. Small package Acid-Core Solder, Kester Metal Mender for autoist, householder, etc. For delicate radio and electrical work — Kester Rosin - Core Solder.

Manufactured by the
CHICAGO SOLDER COMPANY
4243 Wrightwood Ave.
CHICAGO, U. S. A.

December 31, 1927

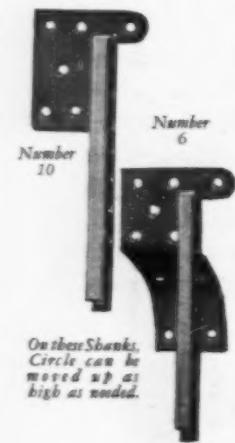
Stronger~Handier! the new Lupton M-R Hanger

**STRENGTH**

This rigid interlocking joint of Shank with Circle is stronger than any other.

**STRENGTH**

The double-channeled bend makes this the strongest No. 12 Shank on the market.



Double head Circles are available with M-R Hangers.



Lupton head clips are also galvanized to resist rust. Have no unfinished edges.

**STRENGTH**

The gutter is supported on a wide bearing surface.

**STRENGTH**

Note this solid construction near the head to resist the rush of ice and snow.

THIS EAVE-TROUGH HANGER is of new design from end to end — stronger and more convenient than any other you've ever handled.

Made in any roofing metal and udylite-coated for lasting rust protection, M-R Hangers save erection labor, make a neat solid job without solder, and are more than strong enough to carry any load of snow, ice or water that gets into the gutter. Their strength is in the three broad contact surfaces where the circle meets the shank, the width of bearing under the gutter, and a design which makes the hanger more rigid as the load on it increases.

See how much better you like Lupton M-R Hangers on your next gutter job. Your jobber can supply you — any metal, any shank, double or single bead circles—or we will ship direct and bill through your jobber.

DAVID LUPTON'S SONS COMPANY
Allegheny Avenue and Tulip Street, Philadelphia

LUPTON

SHEET METAL PRODUCTS

Say you saw it in AMERICAN ARTISAN—Thank you!



YOU KNOW A GOOD ELBOW

the minute you pick it up. Most men in the trade do. And that's why Lupton Elbows have been leaders for over 50 years. Q Lupton Elbows, machine-made in one piece, never vary in size, girth, nor shape. They're made of good metal—always heavier than corresponding gauges of pipe—thickly coated and cleanly galvanized. And, in addition, they have the $2\frac{1}{2}$ " taper which makes a quick, tight joint without solder.

Specify them to your Jobber

DAVID LUPTON'S SONS COMPANY
Allegheny Ave. & Tulip St., Philadelphia

L U P T O N

ELBOWS  THAT FIT

Say you saw it in AMERICAN ARTISAN—Thank you!

December 31, 1927

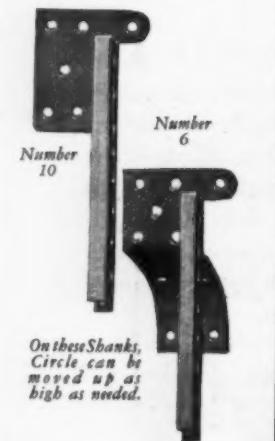
Stronger~Handier! the new Lupton M-R Hanger



STRENGTH
This rigid interlocking joint of Shank with Circle is stronger than any other.



STRENGTH
The double-channeled bend makes this the strongest No. 12 shank on the market.



On the shanks, Circle can be moved up as high as needed.



Double bead Circles are available with M-R Hangers.



Here's a close strong fit of Circle with gutter.



Lupton bead clips are also galvanized to resist rust. Have no unfinished edges.



STRENGTH
The gutter is supported on a wide bearing surface.



STRENGTH
Note this solid construction near the bead to resist the rush of ice and snow.

THIS EAVE-TROUGH HANGER is of new design from end to end — stronger and more convenient than any other you've ever handled.

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Specify them to your Jobber

DAVID LUPTON'S SONS COMPANY
Allegheny Ave. & Tulip St., Philadelphia

L U P T O N

ELBOWS THAT FIT



Say you saw it in AMERICAN ARTISAN—Thank you!

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NETTING, POULTRY

Galvanized before weaving57½-5%
Galvanized after weaving.52½-5%

PASTE

Asbestos Dry Paste:
200-lb. barrel\$16.00
100-lb. barrel8.75
35-lb. pail3.50
10-lb. bag1.10
5-lb. bag60
2½-lb. cartons35

PIPE

Conductor Cor. Rd., Plain Rd., or Sq.

Galvanized

Crated and nested (all gauges)75-2½%
Crated and not nested (all gauges)70-15%

Furnace Pipe

Double Wall Pipe and Fittings60%
Single Wall Pipe, Round Galvanized Pipe60%
Galvanized and Tin Fittings60%

Lead

Per 100 lbs.\$12.50

Stove Pipe

"Milcor" "Titelock" Uniform Blue

Stove

28 gauge, 5 inch U. C. nested10.50
28 gauge, 6 inch U. C. nested11.00
28 gauge, 7 inch U. C. nested13.00
30 gauge, 5 inch U. C. nested9.00
30 gauge, 6 inch U. C. nested10.00
30 gauge, 7 inch U. C. nested12.00

T-Joint Made up

6-inch, 28 ga.per doz. \$4.00

All Zinc

No. 11, all styles60%

POKERS, STOVE

W't Steel, str't or bent, per dog.\$0.75
Nickel Plated, coll handles, per doz.1.10

POKERS, FURNACE

Each\$0.50

PULLEYS

Furnace Tackle....per doz. \$0.60
.....per gro. 6.00
Furnace Screw (enamored)per doz. 75

Ventilating Register

Per gross9.00
Small, per pair20
Large, per pair50

PUTTY

Commercial Putty, 100-lb. Kits\$3.40

QUADRANTS

Malleable Iron Damper.10%

REDUCERS—Oval Stove Pipe

Per Doz. 7-6, 28-gauge, 1 doz. in carton\$2.00

REGISTERS AND BORDERS

Baseboard, Floor and Wall.

Cast Iron20%

Steel and Semi-Steel.40%

Baseboard40%

Wall40%

Adjustable Ceiling Ventilators 40%

Register Faces—Cast and Steel

Japanned, Bronzed and Plated, 4x6 to 14x14.40%

Large Register Faces—Cast, 14x14 to 35x48.60%

Large Register Faces—Steel, 14x14 to 35x42.65%

RIDGE ROLL

Galv., Plain Ridge Roll, b'did.75-10-5%

Galv., Plain Ridge Roll crated.75-10%

Globe Finials for Ridge Roll50%

ROOFING

Best grade, slate surf. prepared\$2.20

Best talc surfaced3.65

Medium talc surfaced3.00

Light talc surfaced1.20

Red Rosin Sheeting, per ton \$7.00

SCREWS

Sheet Metal 7, ¼x½, per gross\$0.55

No. 10, ¾x3/16, per gross65

No. 14, ¾x½, per gross85

SHREAS, TINNERS' & MACHINISTS'

Viking\$22.00

LINNEX THREATHLESS

No. 1835%

Shear blades10%
(f. o. b. Marshalltown, Iowa)

SHIELDS, REGISTER

No. 1 "Gem" floor\$12.00 doz.
No. 2 "Gem" wall6.00 doz.

SHOES

Galv. 28 Gauge, Plain or corrugated round flat crimp60%
26 gauge round flat crimp45%
24 gauge round flat crimp15%

SNIPS, TINNERS'

Clover Leaf40 & 10%
National40 & 10%
Star50%
MilcorNet

SQUARES

Steel and IronNet
(Add for bluing, \$3 per doz. net.)

MitreNet

TryNet

Try and BevelNet

Try and MitreNet

Fox'sper doz. \$6.00

Winterbottom's10%

STOPPERS, FLUE

Commonper doz. \$1.10
Gem, No. 1per doz. 1.10
Gem, flat, No. 3per doz. 1.00

VENTILATORS

Standard30 to 40%

WIRE

Plain annealed wire, No. 8 per 100 lbs.\$3.05

Galvanized Barb wire, per 100 lbs.3.90

Wire Cloth—black painted, 12-mesh, per 100 sq. ft.1.65

Cattle Wire—galvanized catch weight spool, per 100 lbs.3.65

Galvanized Hog Wire, 80 rod spool, per spool.3.18

Galvanized Plain Wire, No. 9, per 100 lbs.3.40

Stove Pipe, per stone.1.10

WRINGERS

No. 790, Guaranteeeach \$5.10

No. 770, Bicycleeach 4.70

No. 670, Domesticeach 4.25

No. 110, Brightoneach 3.70

No. 750, Guaranteeeach 5.10

No. 740, Bicycleeach 4.70

No. 22, Pioneereach 3.40

No. 2, Superbeach 3.65

LEARN HOW TO MARKET YOUR ABILITY MORE SUCCESSFULLY

Our purpose is to discover—the up-and-coming Men of this Generation. Men who have 100% Ambition—who want to do things Big.

IT IS YOU WE WANT TO TRAIN TO BE A WINNER!

They pay Race Horse and Base Ball Trainers \$15,000 to \$25,000 a year—just to train them to Win—Think of it, to Win?

WHO IS TRAINING YOU TO BE A WINNER?

Why not engage the ST. LOUIS TECHNICAL INSTITUTE to Train you in a Specialized way? We open up many highways to market your ability more successfully. The St. Louis Technical Institute delivers the goods express prepaid—therefore use the methods of Winners—not next year; but NOW.

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Write today for full information in a Specialized Training in the following Course you check—do it NOW—while you have 100% ambition. Date your Future from today. Full information is free.

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- SPECIAL WARM AIR FURNACE HEATING
- SHEET METAL CONTRACTING & ESTIMATING
- FAN HEATING VENTILATING ENGINEERING

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Prin. 4543 Clayton Ave., St. Louis, Mo.

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WE MANUFACTURE A COMPLETE LINE OF BOLT PRODUCTS, INCLUDING STOVE BOLTS, CARRIAGE BOLTS, MACHINE BOLTS, LAG BOLTS, NUTS, COTTER PINS, ETC. ALSO STOVE RODS, SMALL RIVETS AND HINGE PINS. CATALOG ON REQUEST.

THE LAMSON & SESSIONS CO.
THE KIRK-LATTY CO.
1971 W. 85th St. Cleveland, O.

The NEW IMPROVED "STANDARD" Rotable Ventilator



Patents pending

STANDARD VENTILATOR CO., LEWISBURG, PA.

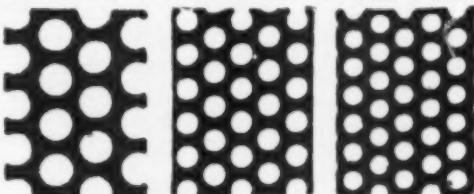
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This TREADLE GAP SHEAR is made in all standard sizes for No. 14 and lighter gauge sheets. With it, sheets can be squared, trimmed or slit.

We make a complete line of shears, punches and bending rolls, all sizes for hand or belt drive. Write for Catalog "S."

BERTSCH & COMPANY Cambridge City, Ind.

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All Sizes and Shapes of Holes
In Steel, Zinc, Brass, Copper, Tinplate, etc.
For All Screening, Ventilating and Draining
EVERYTHING IN PERFORATED METAL

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• NEW YORK OFFICE, 14 LIBERTY ST.

If you are in need of any tools or machines and you don't see them advertised or listed in the BUYERS' DIRECTORY write to the NOTES AND QUERIES DEPT. of American Artisan—we can tell you where to obtain any Sheet Metal Working Tools and Machines made.

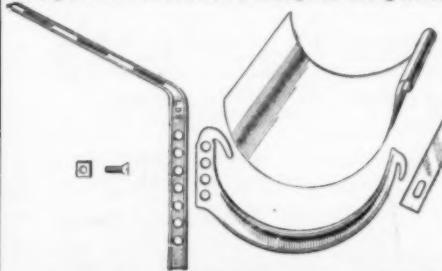
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Air Filters. Reed Air Filter Co., Louisville, Ky.	Dieckmann Co., Ferdinand. Cincinnati, Ohio	Hotels. Fort Shelby Hotel, Detroit, Mich.
Bale Ties. American Steel & Wire Co., Chicago, Ill.	Lupton's Sons Co., David. Philadelphia, Pa.	Humidifiers. Automatic Humidifier Co., Cedar Falls, Iowa
Blowers. Sturtevant Co., B. F., Boston, Mass.	Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City	L. J. Mueller Furnace Co., Milwaukee, Wis.
Bolts—Stove. The Kirk-Latty Co., Cleveland, Ohio	Engineering—Fan Blast Warm Air Heating. Herbert H. Davis Co., Inc., Chicago, Ill.	Robinson Furnace Co., Chicago, Ill.
Brakes—Bending. Dreis & Krump Mfg. Co., Chicago, Ill.	Wood Faces—Cold Air. Auer Register Co., Cleveland, Ohio	Lath—Expanding Metal. Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City
Ryerson & Son, Inc., Jos. T., Chicago, Ill.	American Wood Register Co., Plymouth, Ind.	Machines—Crimping. Bertsch & Co., Cambridge City, Ind.
Brakes—Cornice. Dreis & Krump Mfg. Co., Chicago, Ill.	Eaglesfield Ventilator Co., Indianapolis, Ind.	Machinery—Culvert. Bertsch & Co., Cambridge City, Ind.
Brass and Copper. American Brass Co., Waterbury, Conn.	Marsh Lumber Co., Dover, Ohio	Machines—Tinsmith's. Bertsch & Co., Cambridge City, Ind.
Copper & Brass Research Association, New York	McClure Builders Supply Co., East Palestine, Ohio	Burton Co., The W. J., Detroit, Mich.
Merchant & Evans Co., Philadelphia, Pa.	Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City	Dreis & Krump Mfg. Co., Chicago, Ill.
Cans—Garbage. Osborn Co., The J. M. & L. A., Cleveland, Ohio	United States Register Co., Battle Creek, Mich.	Marshalltown Mfg. Co., Marshalltown, Iowa
Castings—Malleable. Fanner Mfg. Co., Cleveland, Ohio	Fences. American Steel & Wire Co., Chicago, Ill.	Osborn Co., The J. M. & L. A., Cleveland, Ohio
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Chimney Tops. Standard Ventilator Co., Lewisburg, Pa.	Connors Paint Mfg. Co., Wm., Milwaukee, Wis.	Mandrels. Hydro Mfg. Co., New York, N. Y.
Vall Mfg. Co., Fort Wayne, Ind.	Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City	Metals—Perforated. Harrington & King Perforating Co., Chicago, Ill.
Check Drafts. Teela Sheet Metal Co., Oshkosh, Wis.	Pecora Paint Co., Philadelphia, Pa.	Miters. Friedley-Voshardt Co., Chicago, Ill.
Clinker Tongs. L. J. Mueller Furnace Co., Milwaukee, Wis.	Furnace Cement—Liquid. Technical Products Co., Pittsburgh, Pa.	Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City
Coal Chutes. Majestic Co., The, Huntington, Ind.	Furnace Cleaners—Suction. Brillion Furnace Co., Brillion, Wis.	Nails—Eaves Trough. Barnes Zinc Products Co., Chicago, Ill.
Copper. American Brass Co., Waterbury, Conn.	Sturtevant Co., B. F., Boston, Mass.	Lupton's Sons Co., David, Philadelphia, Pa.
Copper & Brass Research Association, New York	Furnace Fans. A. H. Robinson Co., Massillon, Ohio	Nails—Hardened Masonry. Parker-Kalon Corp., New York, N. Y.
Cornices. Friedley-Voshardt Co., Chicago, Ill.	Robinson Furnace Co., Chicago, Ill.	Nails—Wire. American Steel & Wire Co., Chicago, Ill.
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Cut-offs—Rain Water Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City	Walworth Run Fdy. Co., Cleveland, Ohio	Ornaments—Sheet Metal. Friedley-Voshardt Co., Chicago, Ill.
Damper—Quadrants—Accessories. Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City	Furnaces—Gas. Calkins & Pearce, Columbus, Ohio	Geroch Bros. Mfg. Co., St. Louis, Mo.
L. J. Mueller Furnace Co., Milwaukee, Wis.	Furnaces—Warm Air. Agricola Furnace Co., Gadsden, Ala.	Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City
Parker-Kalon Corp., New York, N. Y.	American Furnace Co., St. Louis, Mo.	Oxygen (Gas). Linde Air Products Co., New York, N. Y.
Diffuser—Air Duct. Aeolus-Dickinson Co., Chicago, Ill.	American Foundry & Furnace Co., Bloomington, Ill.	Paint. Connors Paint Mfg. Co., Wm., Troy, N. Y.
L. J. Mueller Furnace Co., Milwaukee, Wis.	Banner Mahoning Furnace Co., Youngstown, Ohio	Pecora Paint Co., Philadelphia, Pa.
Doors—Metal. Lupton's Sons Co., David, Philadelphia, Pa.	Brillion Furnace Co., Brillion, Wis.	Patterns—Furnace and Stove. Cleveland Castings Pattern Co., Cleveland, Ohio
Drive Screws—Hardened Metallic Parker-Kalon Corp., 354 West 13th St., New York	Calkins & Pearce, Columbus, Ohio	Quincy Pattern Co., Quincy, Ill.
Eaves Trough. Barnes Zinc Products Co., Chicago, Ill.	Colburn Heater Co., Chicago, Ill.	Vedder Pattern Works, Troy, N. Y.
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Berger Co., L. D., Philadelphia, Pa.	Floral City Heater Co., Monroe, Mich.	Johnson Co., Chas., Inc., Peoria, Ill.
Lupton's Sons Co., David, Philadelphia, Pa.	Forest City-Walworth Run Fdy. Co., Cleveland, Ohio	Lamneck Co., W. E., Columbus, Ohio
Lennox Furnace Co., Philadelphia, Pa.	Fox Furnace Co., Elyria, Ohio	Meyer & Bro. Co., F. Peoria, Ill.
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New Jersey Zinc Sales Co., The, New York, N. Y.	Hall-Neal Furnace Co., Indianapolis, Ind.	Mueller Furnace Co., L. J., Milwaukee, Wis.
Wheeling Corrugating Co., Wheeling, W. Va.	Henry Furnace & Fdy. Co., Cleveland, Ohio	Waterman-Waterbury Co., Minneapolis, Minn.
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	Hess-Snyder Co., Massillon, Ohio	
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	International Heater Co., Utica, N. Y.	
	Keith Furnace Co., Des Moines, Iowa	
	Lamneck Co., W. E., Columbus, Ohio	
	Langenberg Mfg. Co., St. Louis, Mo.	
	Lennox Furnace Co., Marshalltown, Ia.; Syracuse, N. Y.	
	Marshalltown Heater Co., Marshalltown, Iowa	
	Meyer Furnace Co., The, Peoria, Ill.	
	Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City	
	May-Flebeger Furnace Co., Newark, Ohio	
	Standard Furnace & Supply Co., Omaha, Neb.	
	Waterman-Waterbury Co., Minneapolis, Minn.	

Mention AMERICAN ARTISAN in your reply—Thank you!

ROOF GUTTER SUPPORTS

This illustration shows, unassembled, one of the many styles of eaves trough hangers made by us which may be adjusted every eighth of an inch for drainage in the gutter. These hangers are widely used throughout the United States. Write for catalog No. 2, which also illustrates and describes conductor hooks and fasteners.



*Free Samples
Gladly Furnished.*

L. D. BERGER COMPANY
57 N. 2nd St., Philadelphia, Pa.

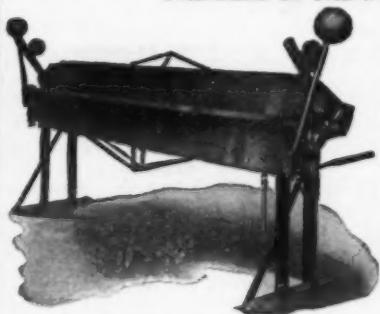
WIRE

electrical, rope, barbed, plain, nails (bright and coated), tacks, spikes, bale ties, hoops, springs, netting, wire fences, steel posts, steel gates, trolley wire, rail bonds, flat wire, cold rolled strip steel, piano wire, round and odd-shape wire, screw stock, welding wire, concrete reinforcement. Aerial tramways.

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American Steel & Wire

Sales Offices: Chicago, New York
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Company

CHICAGO STEEL CORNICE BRAKES
STANDARD OF THE WORLD

THE BEST BRAKE FOR ALL PURPOSES: Most Durable, Easiest Operated, Low in Price; Made in All Lengths and to Bend All Gauges of Metal. Over 23,000 in use.

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CAST IRON
SWING CHIMNEY TOP**

Fits any size stack—6" to 10" inclusive. Inexpensive, simple and durable. Satisfaction guaranteed.

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WILL NOT MELT
IS MORE ECONOMICAL

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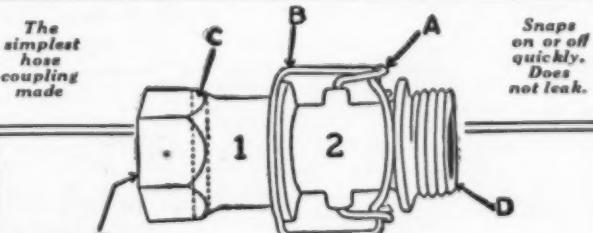
SPECIAL CHEMICALS CO.
WAUKEGAN, ILLINOIS

The W. J. BURTON CO.
Detroit, Michigan

Forty-Four Years
Serving the
Sheet Metal Contractor

with

**SHEET METAL PRODUCTS
FOR BUILDINGS**

**HESSLER Perfect Hose Connection**

YOU and your customers, everybody who uses a hose will welcome the Hessler Hose Connection. It saves hose length and the hose, no kinking or twisting—no splashing, no leakage and you snap it on or off in a wink. The Hessler will be a big, fast seller and a real profit maker. Order a sample lot now—made in four sizes. Write today for price and circulars.

H. E. HESSLER CO.

Syracuse, New York

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Standard Furnace & Supply Co., Omaha, Neb.

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 Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City

Pipe—Conductor.
 Barnes Zinc Products Co., Chicago, Ill.
 Berger Bros. Co., Philadelphia, Pa.
 Dieckmann Co., Ferdinand, Cincinnati, Ohio
 Friedley-Voshardt Co., Chicago, Ill.
 Lupton's Sons Co., David, Philadelphia, Pa.
 Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City
 New Jersey Zinc Sales Co., The, New York, N. Y.
 Wheeling Corrugating Co., Wheeling, W. Va.

Posts—Steel Fence.
 American Steel & Wire Co., Chicago, Ill.

Punches.
 Bertsch & Co., Cambridge City, Ind.
 Peck, Stow & Wilcox Co., Southington, Conn.
 Ryerson & Son, Inc., Jos. T., Chicago, Ill.
 Whitney Mfg. Co., W. A., Rockford, Ill.
 Whitney Metal Tool Co., Rockford, Ill.

Punches—Combination Bench and Hand.
 Hyro Mfg. Co., New York, N. Y.
 Ryerson & Son, Inc., Jos. T., Chicago, Ill.
 Whitney Metal Tool Co., Rockford, Ill.
 Whitney Mfg. Co., W. A., Rockford, Ill.

Punches—Hand.
 Hyro Mfg. Co., New York, N. Y.
 Ryerson & Son, Inc., Jos. T., Chicago, Ill.
 Whitney Metal Tool Co., Rockford, Ill.
 Whitney Mfg. Co., W. A., Rockford, Ill.

Putty—Stove.
 Connors Paint Mfg. Co., Wm., Troy, N. Y.
 Pecora Paint Co., Philadelphia, Pa.

Radiator Cabinets.
 Th. Hart & Cooley Mfg. Co., New Britain, Conn.
 Tuttle & Bailey Mfg. Co., Chicago, Ill.

Registers—Shields.
 Beh & Co., Inc., New York, N. Y.
 The Thomas & Armstrong Co., London, Ohio

Ranges—Combination Gas & Coal.
 Quick Meal Stove Co., St. Louis, Mo.
 Thatcher Co., Newark, N. J.

Ranges—Gas.
 Quick Meal Stove Co., St. Louis, Mo.

Register Shields.
 Beh & Co., Inc., New York, N. Y.

Registers—Warm Air.
 Auer Register Co., Cleveland, Ohio
 Hart & Cooley Co., New Britain, Conn.
 Henry Furnace & Fdy. Co., Cleveland, Ohio
 Independent Register & Mfg. Co., Cleveland, Ohio
 Lamneck & Co., W. E., Columbus, Ohio
 Majestic Co., The, Huntington, Ind.
 Meyer & Bro. Co., F., Peoria, Ill.
 Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City
 Mueller Furnace Co., L. J., Milwaukee, Wis.
 Robinson Furnace Co., Chicago, Ill.
 Rock Island Register Co., Rock Island, Ill.
 Standard Furnace & Supply Co., Omaha, Neb.
 Tuttle & Bailey Mfg. Co., Chicago, Ill.
 United States Register Co., Battle Creek, Mich.
 Walworth Run Fdy. Co., Cleveland, Ohio
 Waterloo Register Co., Waterloo, Iowa

Registers—Wood.
 American Wood Register Co., Plymouth, Ind.
 Auer Register Co., Cleveland, Ohio
 Eaglesfield Ventilator Co., Indianapolis, Ind.
 McClure Builders Supply Co., East Palestine, Ohio
 Marsh Lumber Co., Dover, Ohio
 Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City
 L. J. Mueller Furnace Co., Milwaukee, Wis.
 United States Register Co., Battle Creek, Mich.

Repairs—Stove and Furnace.
 Hessler Co., H. E., Syracuse, N. Y.
 Kramer Bros. Fdy. Co., Dayton, Ohio
 Northwestern Stove Repair Co., Chicago, Ill.

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 Armcio Distributors Ass'n of America, Middletown, Ohio
 Lupton's Sons Co., David, Philadelphia, Pa.
 Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City

Rivets—Stove.
 The Kirk-Latty Co., Cleveland, Ohio
 Lamson & Sessions Co., Cleveland, Ohio
 Ryerson & Son, Inc., Jos. T., Chicago, Ill.

Rods—Stove.
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 Lamson & Sessions Co., Cleveland, Ohio

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 Bertsch & Co., Cambridge City, Ind.

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 Connors Paint Mfg. Co., Wm., Troy, N. Y.
 Pecora Paint Co., Philadelphia, Pa.

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 Hessler Co., H. E., Syracuse, N. Y.
 Milwaukee Corrugating Co., Milwaukee, Wis.

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 Burton Co., The W. J., Detroit, Mich.
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Screens—Perforated Metal.
 Harrington & King Perforating Co., Chicago, Ill.

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 Marshalltown Mfg. Co., Marshalltown, Iowa
 Peck, Stow & Wilcox Co., Southington, Conn.
 Ryerson & Son, Inc., Jos. T., Chicago, Ill.
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 Viking Shear Co., Erie, Pa.

Sheet Metal Screws—Hardened, Self-Tapping.
 Parker-Kalon Corp., 354 West 13th St., New York

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 Burton Co., The W. J., Detroit, Mich.
 Central Alloy Steel Corp., Massillon, Ohio
 Inland Steel Co., Chicago, Ill.
 Merchant & Evans Co., Philadelphia, Pa.
 Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City
 Osborn Co., The J. M. & L. A., Cleveland, Ohio
 Taylor Co., N. & G., Philadelphia, Pa.
 Wheeling Corrugating Co., Wheeling, W. Va.

Sheets—Iron.
 Armcio Distributors Ass'n of America, Middletown, Ohio
 Central Alloy Steel Corp., Massillon, Ohio
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Sheets—Tin.
 Merchant & Evans Co., Philadelphia, Pa.
 Taylor Co., N. & G., Philadelphia, Pa.

Sheets—Zinc.
 New Jersey Zinc Sales Co., The, New York, N. Y.

Shingles and Tiles—Metal.
 Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City
 Wheeling Corrugating Co., Wheeling, W. Va.

Shingles—Zinc.
 Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City

Sifters—Ash.
 Diener Mfg. Co., G. W., Chicago, Ill.

Sky Lights.
 Lupton's Sons Co., David, Philadelphia, Pa.
 Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City

Solder.
 Chicago Solder Co., Chicago, Ill.
 Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City

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 Burgess Soldering Furnace Co., Columbus, Ohio
 Diener Mfg. Co., G. W., Chicago, Ill.
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 Ryerson & Son, Inc., Jos. T., Chicago, Ill.

Soldering Supplies.
 Special Chemicals Co., Waukegan, Ill.

Smoke Pipe—Cast Iron.
 Waterloo Register Co., Waterloo, Iowa

Specialties—Hardware.
 Diener Mfg. Co., G. W., Chicago, Ill.
 Hessler Co., H. E., Syracuse, N. Y.
 Parker-Kalon Corp., 354 West 13th St., New York

Screws—Hardened Self-Tapping, Sheet Metal.
 Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City
 Parker-Kalon Corp., 354 West 13th St., New York

Statuary.
 Friedley-Voshardt Co., Chicago, Ill.
 Gerock Bros. Mfg. Co., St. Louis, Mo.

Stove Pipe Reducers.
 Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City

Stoves—Camp.
 Quick Meal Stove Co., St. Louis, Mo.

Stoves—Gasoline and Oil.
 Quick Meal Stove Co., St. Louis, Mo.

Stoves and Ranges.
 Quick Meal Stove Co., St. Louis, Mo.
 Thatcher Co., Newark, N. J.

Tacks, Staples, Spikes.
 American Steel & Wire Co., Chicago, Ill.

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 Burton Co., The W. J., Detroit, Mich.
 Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City
 Osborn Co., The J. M. & L. A., Cleveland, Ohio
 Taylor Co., N. & G., Philadelphia, Pa.

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 Bertsch & Co., Cambridge City, Ind.
 Burton Co., The W. J., Detroit, Mich.
 Dries & Krump Mfg. Co., Chicago, Ill.
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 Marshalltown Mfg. Co., Marshalltown, Iowa
 Osborn Co., The J. M. & L. A., Cleveland, Ohio
 Peck, Stow & Wilcox Co., Southington, Conn.
 Ryerson & Son, Inc., Jos. T., Chicago, Ill.
 Viking Shear Co., Erie, Pa.
 Whitney Mfg. Co., W. A., Rockford, Ill.
 Whitney Metal Tool Co., Rockford, Ill.

Torches.
 Burgess Soldering Furnace Co., Columbus, Ohio
 Diener Mfg. Co., G. W., Chicago, Ill.
 Quick Meal Stove Co., St. Louis, Mo.
 Ryerson & Son, Inc., Jos. T., Chicago, Ill.

Trade Extension.
 Copper & Brass Research Association, New York, N. Y.
 Sheet Steel Trade Extension Committee, Pittsburgh, Pa.

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 Fanner Mfg. Co., Cleveland, Ohio

Ventilators.
 Aeolus Dickinson Co., Chicago, Ill.
 Akrat Ventilators, Inc., Chicago, Ill.

Arex Company.
 Berger Bros. Co., Philadelphia, Pa.

Friedley-Voshardt Co.

Snips.
 Peck, Stow & Wilcox Co., Southington, Conn.
 Ryerson & Son, Inc., Jos. T., Chicago, Ill.

Sky Lights.
 Lupton's Sons Co., David, Philadelphia, Pa.
 Milwaukee Corrugating Co., Mil., Ch'go, La Crosse, Kan. City

Solder.
 Chicago Solder Co., Chicago, Ill.
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Soldering Furnaces.
 Burgess Soldering Furnace Co., Columbus, Ohio
 Diener Mfg. Co., G. W., Chicago, Ill.
 Quick Meal Stove Co., St. Louis, Mo.
 Ryerson & Son, Inc., Jos. T., Chicago, Ill.

Soldering Supplies.
 Special Chemicals Co., Waukegan, Ill.

Smoke Pipe—Cast Iron.
 Waterloo Register Co., Waterloo, Iowa

Specialties—Hardware.
 Diener Mfg. Co., G. W., Chicago, Ill.
 Hessler Co., H. E., Syracuse, N. Y.
 Parker-Kalon Corp., 354 West 13th St., New York

Statuary.
 Friedley-Voshardt Co., Chicago, Ill.
 Gerock Bros. Mfg. Co., St. Louis, Mo.

Windows—Steel.
 Lupton's Sons Co., David, Philadelphia, Pa.

Wire—Electrical.
 American Steel & Wire Co., Chicago, Ill.

Wire Hoops.
 American Steel & Wire Co., Chicago, Ill.

Wire Rope.
 American Steel & Wire Co., Chicago, Ill.

Zinc.
 Merchant & Evans Co., Philadelphia, Pa.
 New Jersey Zinc Co., The, New York, N. Y.

WANTS AND SALES

Yearly subscribers to the AMERICAN ARTISAN may insert advertisements of not more than fifty words in our Want and Sales Columns WITHOUT CHARGE.

Such advertisements, however, must be limited to help or situation wanted, tools or equipment for sale, to exchange or to buy, business for sale or location desired. This privilege is not extended to manufacturers or jobbers—or those making a business of buying and selling used machines, employment agencies and brokers.

When sending advertisement state whether your name or blind number is to be used.

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Lightning Rods—Dealers who are selling Lightning Protection will make money by writing to us for our latest Factory to Dealer Prices. We employ no salesmen and save you all overhead charges. Our Pure Copper Cable and Fixtures are endorsed by the National Board of Fire Underwriters and hundreds of dealers. Write today for samples and prices. L. K. Diddle Company, Marshfield, Wisc.

For Sale—Half interest in well established sheet Metal Shop. Furnace work a specialty. Using Standard Code. 6,000 population, 180 miles west of Minneapolis. \$1,200.00 and man needed to take charge of business. Address Q-463, AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago.

Have \$3,000.00 to invest in a good plumbing and heating business. I am an Illinois licensed Master Plumber. Would like to connect with a good live wire. State full particulars and what you have to offer in first letter. Address E-461, AMERICAN ARTISAN, 620 S. Michigan Avenue, Chicago, Ill.

For Sale—Radiator shop, fully equipped, in town of 8,000 population. Business can be learned in a short time. Large territory to draw from. Rent \$8.00 per month. Will sell cheap if taken at once. Address John Doll, 201 East 2nd Ave., St. Charles, Ill. t462

Sheet Metal & Plumbing Shop for Sale—In central U. S. town of 4,500 population. Good business and good reason for selling. Address A-462, AMERICAN ARTISAN, 620 So. Michigan Ave., Chicago, Ill.

For Sale—An established furnace installation business in Grand Rapids, Michigan. Will sell at inventory. Small down payment required. Address Z-461, AMERICAN ARTISAN, 620 So. Michigan Ave., Chicago, Ill.

For Sale—Brand new stock of 44 furnaces of a well known make. Write for list of sizes and details. Must sacrifice. Address W-462, AMERICAN ARTISAN, 620 S. Michigan Avenue, Chicago, Illinois.

SITUATION WANTED

Situation Wanted—By first class tinner and furnace man. Can also do plumbing. 20 years' experience at the trade. Can lay out patterns. Neat workman, married. Prefer Iowa, Minnesota or S. Dakota. Address Z-462, AMERICAN ARTISAN, 620 S. Michigan Avenue, Chicago, Illinois.

SITUATION WANTED

Situation Wanted—Salesman with eighteen years in the stove and furnace field is available for a proposition for 1928. Has had both traveling and inside office experience with two of the largest manufacturers in their respective fields. Age 34. Good reference, married and reliable. Wisconsin territory preferred. Address Q-460, AMERICAN ARTISAN, 620 So. Michigan Avenue, Chicago.

Situation Wanted—Salesman who has always paid dividends is open for a change for 1928 with some good stove and furnace manufacturer in central or western states territory. Will consider position only where there is a chance for advancement and increased remuneration. Address H-461, AMERICAN ARTISAN, 620 S. Michigan Avenue, Chicago, Ill.

Position Wanted—By a first class furnace salesman who understands the Standard Code and who has had both jobbers and retail experience. Have been a branch manager for the last 15 years for two well known firms. Can plan and install and supervise jobs of any size. Address L-461, AMERICAN ARTISAN, 620 S. Michigan Avenue, Chicago, Ill.

Situation Wanted—Good All Around tinner and furnace man wants position by January 15th. Can also do plumbing. Want to make a change. 12 years' experience and married. Only steady job considered. Prefer Eastern Iowa or Southern Wisconsin. Can furnish good references. Address W-460, AMERICAN ARTISAN, 620 So. Michigan Avenue, Chicago, Ill.

Position Wanted—As working foreman by a first class sheet metal worker in all its branches, such as may come to any first class shop. Can read blueprints and figure work. Have been handling men in all classes of work for the past 20 years. Wish to make change. Address Edward Collins, 128 Wentworth Street, Charleston, S. C. B463

Situation Wanted—By a practical all around tinner with 25 years' experience at the trade. Can take charge and run shop. Prefer a general job shop. Can figure on work and lay out and erect same. Can come at once. Would prefer a shop with a hardware store. Address P. S. McGuffin, Inkster, Mich. K462.

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Position Wanted—Tinner, Sheet metal worker and furnace man wants position in Illinois or Iowa. Can do anything in the sheet metal line. Sober. Address Tinner, 518 N. West Street, Galva, Ill. A463

Position Wanted—By good all around sheet metal and furnace man. Can handle plumbing, lay out own work. Only steady job considered. 18 years' experience. Write H-462, AMERICAN ARTISAN, 620 So. Michigan Ave., Chicago, Ill.

Position Wanted—By a good tinner, plumber and furnace man. Twenty-five years at the trade. Good references. Married and reliable. Address Y-462, AMERICAN ARTISAN, 620 S. Michigan Avenue, Chicago, Illinois.

Position Wanted—By pattern and template maker. I am also a sheet metal worker. Qualified to take charge of work and handle men. Address S-462, AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.

TINNERS' TOOLS

Wanted—30 inch bar folder. State name and price. Address Y-460, AMERICAN ARTISAN, 620 So. Michigan Avenue, Chicago, Ill.

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Manual of Automotive Radiator Construction and Repair, by F. L. Curfman and T. H. Leet—Anyone interested in Radiator Repairing will find the 185 pages of practical instructions and the 120 illustrations showing actual construction and repairing a big help. In a condensed manner some four to five thousand answers to questions are given. It is thoroughly practical as both authors are men of wide experience in this work. Printed in large, easy to read type. Measures 5½x9 inches. Price \$2.50. Order from Book Dept., AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.

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Salesman to sell well known trademarked, nationally advertised furnaces in Wisconsin. Write, giving our past connections. Address X-462, American Artisan, 620 South Michigan Avenue, Chicago, Illinois.

WANTED COMMISSION SALESMEN

Owing to a large increase in capacity The Excelsior Steel Furnace Company, 118 S. Clinton St., Chicago, wishes to engage several additional commission salesmen. The Excelsior line is one of the largest and most complete made, embracing Furnaces, Furnace Pipe, Stove Pipe and Furnace accessories, all of the highest quality. Branches and distributors located in important cities enable the company to supply its products promptly to dealers in all parts of the country. The line is easy to sell as dealers prefer Excelsior goods which, though superior in every respect, are sold at competitive prices. Apply immediately as territory is to be assigned in the near future.

X-462

SPECIAL NOTICES**Executive Open for Position**

Executive with broad experience and successful record desires new connection. Conversant with manufacturing, installation, distribution and sale of plumbing, heating and warm air furnaces. Will consider position with Chicago Manufacturer or as Chicago Distributor. Have had but two connections in twenty years. Address P-462, American Artisan, 620 So. Michigan Ave., Chicago, Ill.

WE WANT TO MEET A SHEET METAL WORKER OF A CERTAIN TYPE—

Somewhere in Northern Illinois or Southern Wisconsin—there is a sheet metal worker who is sick and tired of being the under-dog—and ready right now to strike out in the FURNACE business for himself. He is primarily interested in the STANDARD CODE and knows how to use it and why. He is honest—thrifty enough to have a home and bank account—and a worker. If you think you are that man—if you are ready to step off into a business of your own—write and tell us fully and frankly about yourself.

Address Y-461, care American Artisan, 620 South Michigan Avenue.

**Manufacturers
of
Warm Air Heaters**

HERE'S the salesman you're looking for.

He can help you in that sales drive that you are putting on—he gets results—he knows the game—he knows the trade and he is well known and respected by thousands of live, high class warm air heater installers throughout the country and especially in the middle west and west.

He has called on the trade and sold warm air heaters for many years—yet he's an up-to-date salesman who works every week of the year—rain or shine.

This salesman's name is **AMERICAN ARTISAN**

and you can secure his services at once.

Write today and get complete details concerning his ability to work for you and with your regular salesmen.

SPECIAL NOTICES**WANTED**

Canadian Warm Air Furnace Manufacturer with efficient Sales Organization from coast to coast would like to get in touch with United States Manufacturer making lines salable to Heating and Sheet Metal Trade and seeking Canadian market. Having large, up-to-date Manufacturing facilities we can, if necessary, manufacture in Canada at lower cost. Address E-462, American Artisan, 620 South Michigan Avenue, Chicago, Ill.

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ITS DRAW WILL SURPRISE YOU
GIVES MORE EFFICIENT EXHAUST
Write for Details and Prices

AKRAT VENTILATORS, INC.
1191 Builders Bldg. CHICAGO

SPECIAL NOTICES**WANTED**

Reliable Salesman now calling on the Hardware and Furniture trade to sell a very popular full porcelain coal range. Price reasonable and big repeater. Territory open—Ohio, Michigan, Pennsylvania, Virginia, West Virginia, North and South Carolina. Liberal commission. Address Rock Island Stove Company, Rock Island, Illinois. D-462

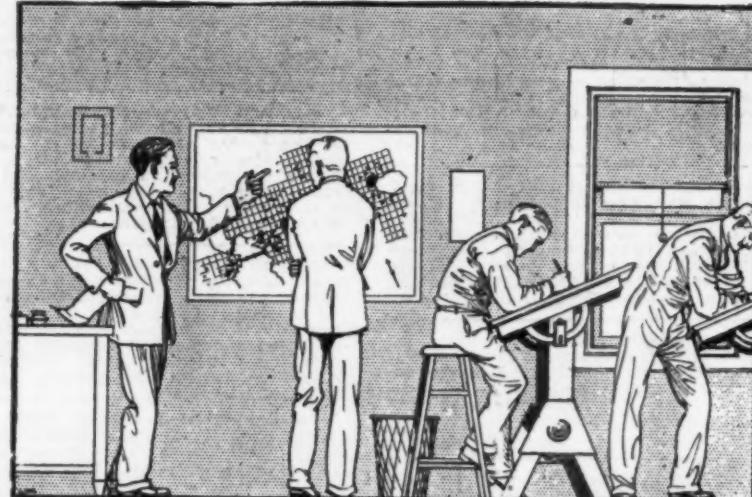
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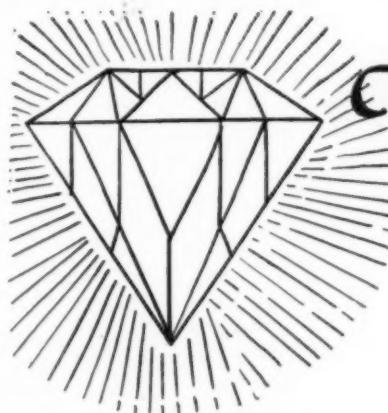
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AS easily handled as a pair of snips, and is absolutely safe. Just connect up with the nearest lamp socket and you're all set to go.

Write us for full particulars and details, or look up issue of November 19th AMERICAN ARTISAN.

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WEIGHT, 6½ LBS.
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THOUGH only weighing $6\frac{1}{2}$ pounds, the Mighty Midget will cut up to 18 U. S. gage (0.050) sheet iron at a speed up to 15 feet per minute. Speed depends on the operator only.

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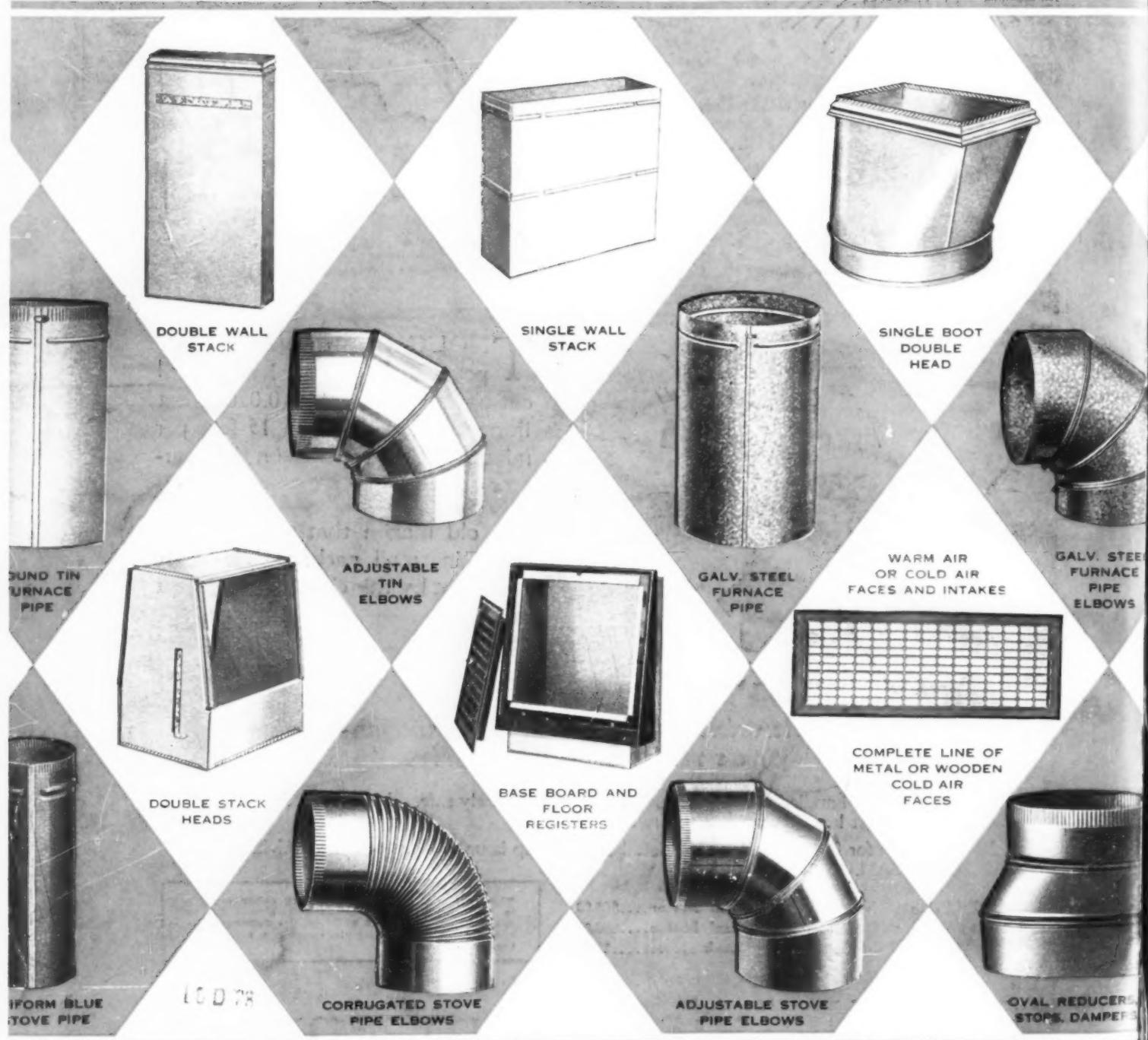
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